New Zealand
Song Birds

* * *

By Johannes C. Andersen

PURCHASED
for the
AUCKLAND INSTITUTE
from the
EDWARD EARLE VAILE
TRUST FUND

⑮

22
[illegible]
[illegible]
[illegible] of [illegible]

AUCKLAND INSTITUTE
AND MUSEUM
LIBRARY
Reserve
CLASS No QL 698.5
copy 4

251

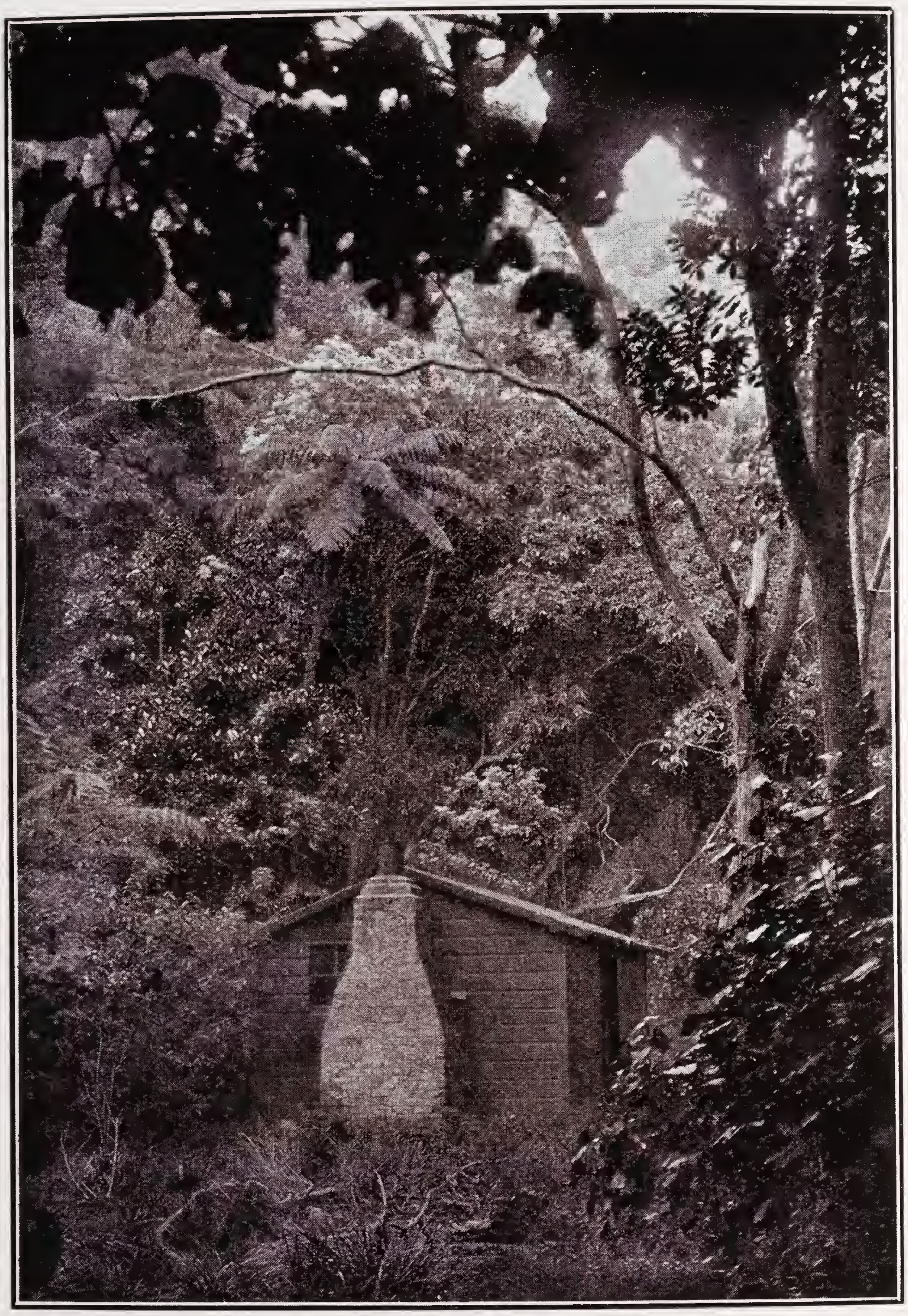
23

Bird-Song: and
New Zealand Song Birds

SUBSCRIBER'S COPY

No. 266

Johannes C. Andersen



[*Wells, photo*

Hut at Waterfall, Kapiti, from edge of grove of kohekohe. The leaves in upper foreground are kawakawa; below them a branch of tree-manuka crosses the picture, cutting the mass of creamy fragrant bloom of the taraheke (daisy-tree): below the blossom is a tree-fern (mamaku); to the right of the fern, mahoe; to the left and below, karaka; to the left of the hut, giant nettle.

BIRD-SONG

AND

NEW ZEALAND SONG BIRDS

BY

JOHANNES C. ANDERSEN, F.N.Z.Inst.

Author of
"Maori Life in Aotea,"
"Jubilee History of South Canterbury,"
"Songs Unsung," "The Lamp of Psyche,"
etc., etc.

WHITCOMBE & TOMBS LIMITED
AUCKLAND CHRISTCHURCH DUNEDIN WELLINGTON
MELBOURNE LONDON

1926

39410

29 JUN '65

DEDICATED

TO

T. H. POTTS
OF OHINETAHI

AND TO

H. GUTHRIE-SMITH
OF TUTIRA

TWO OF OUR TRUEST BIRD-LOVERS
PAST AND PRESENT

ALSO
TO MY YOUNGER FRIENDS AND NATURE-LOVERS
THE SCHOOLCHILDREN

OF NEW ZEALAND

Contents

Page
Introduction 1
List of Authors Quoted 16
Family Muscicapidae ; the Flycatchers 18
Rhipidura flabellifera, the pied fantail, piwakawaka .. 18
Rhipidura fuliginosa, the black fantail, tiwakawaka .. 18
Family Turdidae ; the Thrushes 30
Turnagra tanagra, North Island thrush, piopio .. 39
Turnagra crassirostris, South Island thrush, piopio .. 39
Family Sylviidae ; the Warblers 45
Pseudogerygone igata, the grey warbler, riroriro .. 48
Petroeca toitoi, the white-breasted tit (N.I.), miromiro or ngirungiru 60
Petroeca macrocephala, the yellow-breasted tit (S.I.), miromiro or ngirungiru 60
Miro albifrons, the South Island robin, pitoitoi or toutouwai 64
Miro australis, the North Island robin, pitoitoi or toutouwai 65
Family Paridae 68
Certhiparus albicapillus, the white-head, upokotea or pokotea 69
Mohua ochrocephala, the bush-canary, mohua .. 77
Finschia novae-zealandiae, the brown creeper, pipipi or toitoi 78
Family Montacillidae 81
Anthus novae-zealandiae, the pipit or ground-lark, pihoihoi 81
Anthus steindachneri, the Antipodes-lark 83
Family Alaudidae 84
Family Emberizidae ; the Buntings 89
Family Fringillidae ; the Finches 90
Family Sturnidae ; the Starling 93
Heteralocha acutirostris, huia 94
Creadion carunculatus, the saddle-back, tieke .. 98

Contents

PAGE

Family Corvidae ; the Crows 101
  Glaucopis wilsoni, the North Island or blue-wattled crow, kokako 101
  Glaucopis cinerea, the South Island or yellow-wattled crow, kokako 102
Family Meliphagidae ; the Honey-eaters 106
  Zosterops caerulescens, the blight-bird or silver-eye, tauhou 106
  Prosthemadera novae-zealandiae, tui 112
  Pogonornis cincta, the stitch-bird, hihi 140
  Anthornis melanura, the bell-bird, makomako or korimako 142
  Anthornis melanocephala, the Chatham Island bell-bird 161
Family Xenicidae 162
  Acanthidositta chloris, the rifleman, titipounamu .. 162
Family Cuculidae ; the Cuckoos 164
  Chalcococcyx lucidus, the shining or bronze-winged cuckoo, pipiwharauroa 164
  Urodynamis taitensis, the long-tailed cuckoo, koekoea or kohoperoa 179
Family Nestoridae ; the Parrots 184
  Nestor meridionalis, the brown parrot, kaka 184
  Nestor notabilis, the mountain parrot, kea 188
Family Psittacidae ; the Parrakeets 191
  Cyanoramphus novae-zealandia, the red-fronted parrakeet, kakariki 191
  Cyanoramphus auriceps, the yellow-fronted parrakeet, kakariki 191
  Cyanoramphus malherbei, the orange-fronted parrakeet 191
  Cyanoramphus unicolor, the Antipodes Island parrakeet 191
Family Falconidae 196
  Ninox novae-zealandiae, morepork, ruru 196
Family Rallidae 199
  Ocydromus, the woodhen or Maori hen, weka .. 199
Family Anatidae 202
  Casarca variegata, the paradise duck, putangitangi .. 202
The Cicada.. 204
  Melampsalta cingulata, the cicada, tarakihi 204

List of Illustrations

Hut at Waterfall, Kapiti .. .. .. *Frontispiece*

FACING PAGE

Fantail's Double Nest 20
Thrush's Double Nest (Unfinished) 35
Thrush's Double Nest 35
Linnet's Double Nest 36
Thrush's Nest with Double Lining 36
Thrush's Nest with Double Lining and Unusually Varied Eggs 36
Blackbird's Nest and Thrush's Nest Side by Side .. 37
Variation in Eggs of Introduced birds 37
Thrush's Double Nest with Hedge-sparrow's Nest in One of the Divisions 39
Young Shining Cuckoo in Nest of Grey Warbler .. 59
Stream in Wilton Bush, Wellington 68
Chaffinch's Nest, Wellington 91
Chaffinch's Nest Wellington, Top View 91
Nests of Blight-bird 107
Edge of Kohekohe Glade at Waterfall, Kapiti 128
Dawn at Kapiti 133
Cinema Panels of Tui on Flower-stalk of Flax 136
Grove of Kohekohe at Waterfall, Kapiti 152
Hut at Waterfall, Kapiti, another View 162
Stream from the Glow-worm Dell, Botanical Gardens, Wellington 196

List of Subscribers

The following have subscribed for the number of copies set opposite their names in brackets: where no number is given the subscription is for one copy.

Ackland, E. W. (2), Wellington.
Acland, Dr. H. T. D., Christchurch.
Acland, L. G. D. (2), Hororata.
Alexander, W. G., Auckland.
Allan, E. A. N., Nelson.
Allan, Dr. H. H., Feilding.
Allen, Sir James, London.
Allison, J. M., Quirindi, N.S.W.
Amos, H., Wellington.
Andersen, H., Wellington.
Andersen, H. L., New Brighton.
Anderson, Miss A. M., Napier.
Anderson, R. A., Invercargill.
Angus and Robertson Ltd. (12), Sydney.
Auckland Institute and Museum, Auck.
Auckland Public Library, Auckland.
Balk, Oscar, Dunedin.
Bartrum, John A., Auckland.
Bassett, Wm. G., Wanganui.
Benham, Professor Wm. B., Dunedin.
Bett, Dr. F. A., Nelson.
Billens, Miss K., Palmerston North.
Bloomfield, E. R., Auckland.
Bourke, J. J., Wellington.
Bowker, Geo., Timaru.
Brooking, S. H., Auckland.
Brown, Dr. J. Macmillan, Christchurch.
Brown, J. W., Wellington.
Carlisle, W. J., Christchurch.
Canterbury Public Library, Christchurch.
Champtaloup and Edmiston, Auckland.
Chapman, Sir Frederick, Wellington.
Chilton, Chas., Christchurch.
Clemas, A. E., Masterton.
Clinch, Dr. J. Aldous, Auckland.
Cockroft, T., Wellington.
Collings, Oscar W., Templeton.
Collins, R. J. G., Christchurch.
Cumming, E. J. R., Wellington.
Dalrymple, R. O., Bulls.
Deans, Mrs. (6), Christchurch.
DeLuen, W. H., Auckland.
Devanny, Miss Jean, Wellington.
Dominion Museum, Wellington.
Douglas, Miss C. Allan, New Plymouth.
Doyle, Ven. Archdeacon W., Sydney.
Duigan, H. J., Wanganui.
Dunedin Carnegie Public Library, Dunedin.
Eady, Arthur, Auckland.
Eastwood, Richard James, Gisborne.
Eccles, Alfred, Dunedin.
Falla, R. A., Auckland.
Feilding Agricultural High Sch. Feilding.
Fell, William Scott, Sydney.
Ferguson, W. (2), Silverstream, Wellington.
Frengley, Dr. J. P., Wellington.
Fuge, Major T. W. M. (3), London.
Gale, W. Paget, Dunedin.
Garrow, Professor J. M. E., Wellington.
Gore Coronation Public Library, Gore.
Graham, Elsie D., Wanganui.
Graham, Geo., Auckland.
Gray, Andrew, Auckland.
Guthrie-Smith, H., Hawke's Bay.
Hansen, Frederick A., Auckland.
Harding, A. J., Auckland.
Harding, J. W., Waipukurau.
Hardwick-Smith, Dr. H., Wellington.
Haszard, Mrs. V., Wanganui.
Heenan, J., Wellington.
Heffer, W. & Sons Ld. (2), Cambridge, Eng.
Heinz, W. F., Greymouth.
Helyer, Miss E., Wellington.
Henderson, Walter, Invercargill.
Hodges, H. G., Gisborne.
Hodgkinson, Miss E., Dunedin.
Hodgkiss, F. T., Melbourne.
Howes, Edith, Dunedin.
Howell, J. H., Wellington.
Hudson, G. V., Wellington.
Humphreys, Geo., Christchurch.
Hunter, Douglas G., Arbroath, Scotland.
Hutton, P. W. and Co. (2), Timaru.
Ilott, J. M. A., Wellington.
Invercargill Public Library, Invercargill
Irwin, H., Tikokino.
Isitt, L. M. Ltd., Christchurch.

List of Subscribers

Jenkins, C. H., Auckland.
Johnstone, A. H., Christchurch.
Johnstone, H. B. S., Otaio, S.Canterbury.
Kane, E. W. (2), Wellington.
Kealy, J. W., Auckland.
King, Miss Mary Truby, Wellington.
King, Selwyn, Wellington.
Kinsey, Sir Joseph, Christchurch.
Laing, Robert M., Christchurch.
Large, H., Napier.
Lowrie, Mrs. W. L., Wellington.
Lynneberg, J., Wellington.
Lysaght, W. R., Wellington.
Maggs Bros., London, W.
Maori Ethnological Research Board (40), Wellington.
Matheson, W. B. (2), Eketahuna.
Mathewson, Miss A., Auckland.
Mead, Arthur D., Auckland.
Moncrieff, P., Nelson.
Moore, Stuart, M.D., Dunedin.
Morgan, P. G., Wellington.
Mullins, Hon. John Lane, Sydney.
McDavitt, J. P., Wanganui.
McDonald, J., Wellington.
MacGregor, F. H., Wellington.
McHaffie, Miss D., Wellington.
MacLean, W. H., Taihape.
McMaster, M., Owaka, Otago
New Plymouth Public Library, New Plymouth.
Norman, H. F., Wellington.
Northcroft, Dr. Hilda, Auckland.
Olliver, W. R. B., Wellington.
Olsen, Miss, Wellington.
Orchiston, J., Wellington.
Palmerston North Public Library, Palmerston North.
Park, William, F.R.H.S., Palmerston N.
Peart, J. D., Wellington.
Pond, Mrs. J. A., Auckland.
Pratt, A. G., Okoia.
Pratt, W. H., Wanganui.
Pruis, Dr. H. M., Wellington.
Pycroft, Arthur T., Auckland.
Rodewald, H. M., Auckland.
Ross, Kenneth, Feilding.
Ross, M., Wellington.
Royal Australasian Ornithologist's Union, Melbourne.
Rule, P. Watts, Timaru.
Scarfe, W. A., Wellington.
Serle, P., Hawthorn, Victoria.
Seville, E. H., Wellington.
Simcox, Miss M. M., Otaki.
Simpson, Geo., Dunedin.
Simpson and Williams Ltd. (2), Ch.ch.
Smith, A. J., Tua Marina.
Smith, F. W., Tua Marina.
Smith, I. Duncan (4), Picton.
Smith, M. Crompton, Wellington.
Smith, Wm. Walter, R.A.O.U., New Plymouth.
Sommerville, Miss G., Wellington.
Sotheran, Henry and Co., London.
State Forest Service, Wellington.
Statham, Hon. Sir Charles, Wellington.
Stevens, B. F. and Brown, London.
Stidolph, R. H. D., R.A.O.U., Masterton.
Stout, Sir Robert (5), Wellington.
Strong, Ann Gilchrist (Prof.), Dunedin.
Sutton-Turner, Arthur S., Wellington.
Tait, R., Wellington.
Tanner, Mrs. Denton, Haumoana, H.B.
Thompson, Miss E., Pigeon Bay.
Thompson, Dr. W. M., Hawera.
Thomson, J. Scott., Dunedin.
Thomson, W. A., Dunedin.
Trewin, Mrs. E., Parnassus.
Tripp, L. O. H., Wellington.
Turner, S., Wellington.
Vercoe, C., Palmerston North.
Vosseller, F. W., Wellington.
Walker, A., Wellington.
Wanganui Public Library, Wanganui
Wellington Public Library, Wellington.
Wells, Miss E. W., Napier.
Widdowson, Dr. H. L., Christchurch.
Williams, Miss E. M., Otane.
Williams, H. Bradney, Wellington.
Wilson, Professor F. P., Wellington.
Wilson, Sir James G. (2), Feilding.
Wilson, T. H., Wellington.
Young, Henry and Sons Ltd., Liverpool, England.
Young, James, M.D. (2), Invercargill.

Bird-Song:

and New Zealand Song Birds

* * *

INTRODUCTION

It has often been questioned whether any similarity exists between the song of birds and the song of human beings: whether birds modulate their voices in intervals agreeing with those that build up the scale of the octave. That it is possible for them to do so is evident, since they are able to slur from one note into another, through the full octave, in the same way that the human voice is able to do. Yet most writers, if they theorize at all upon the subject of bird-song, contend that birds do not sing with regular or constant intervals, and "would not deign to be fettered with a scale." (FY, p. 149).* Writers are, however, inconsistent among themselves. It is commonly admitted that the cuckoo sings a minor third at the commencement of the season, increasing the interval regularly through a major third, a fourth, and a fifth, as the season advances; and so constant and well known is the common cry of the bird that it is reproduced mechanically in whistles and clocks. Witchell (WE, pp. 113, 116) states that the calls of the redstart, nightingale, chiff-chaff, willow-warbler, and white-throat are in upward fifths; and he has, further, recorded (WE, pp. 83, 84) the singing by starlings of a phrase consisting of three fifths of different pitch. The rise of a fifth appears to be a natural one, for the tendency of the human voice to rise a fifth has often been noted (EB). It is admitted (WE, pp. 231, 232; and FY, pp. 257, 258) that occasionally the notes do agree with our notes, and the intervals with our intervals; and a reluctant admission seems to be made that birds may occasionally, and as it were accidentally, stumble on the same scale of sounds that the professional musician uses.

---

*The letters and figures in brackets refer to authors in list of authorities, with pages referred to in volumes quoted.

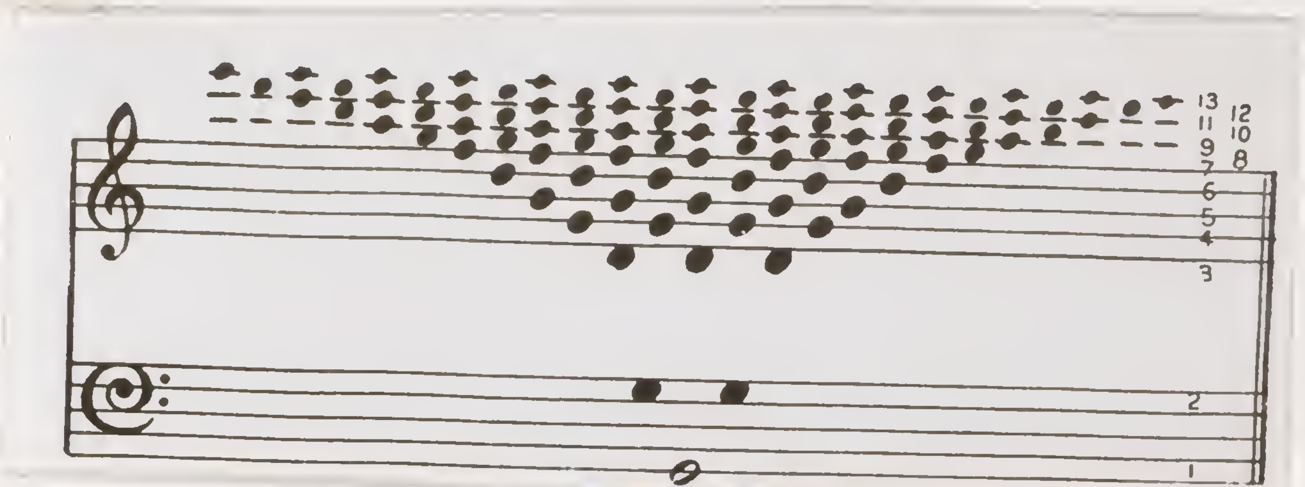
But a little reflection must compel something more than a reluctant admission. Fowler, himself a musician, maintains (FY, pp. 257, 258), that birds do not dwell definitely on any note, but modify it by slightly raising or lowering the pitch, and sliding insensibly into another note, forsaking that for a subdued chuckle or trill, descending or ascending through fractions of a tone. Surely the most casual listener knows that birds do dwell on single notes, and repeat single notes of different pitch clearly and in succession. And in human singing, is it not the finished singer who, besides singing single notes of even pitch clear and true, also blends notes in slurs and trills, until we say she sings "like a bird"—implying a decided compliment? When a singer is out of tune, there is a failure to pay due regard to exact intervals: how often is a bird heard singing out of tune, despite its raising and lowering of pitch, its chuckles and its trills, and its sliding insensibly from one note into another? Moreover, standards of taste in human song differ: to most European ears the song of the Maori is monotonous and unmusical in the extreme. Yet the Maori thoroughly appreciates his own music, and appreciates in addition the music of the European, singing it, as well as his own, with facility, fidelity, and undoubted art. Birds, too, are able to learn human tunes; and the powers of natural mocking-birds are too well known to need remark. Do not such powers prove the receptivity of birds to be akin to that of man, and their discrimination to be as keen as his—for do not human beings, too, first learn by imitation?

In Maori music, it is not the apparently small compass of the song that makes it distasteful to many ears, but the free use of quarter-tones (GO, pp. 225 *et seq.*), and even lesser divisions than quarter tones. Then why is not the song of birds with small compass distasteful? Again, if failure to adhere to the recognized pitch of notes and recognized intervals cause a song to be out of tune, why do not the songs of birds sound out of tune? The very fact that they are tuneful and pleasing to practically every human ear is surely fact sufficient to give one pause before stating that their notes do not conform to the scale accepted by musicians. Did they not conform, their sound would be found intolerable, simply because they would be different from the standard to which we are accustomed. They are, of course, full of slurs, trills, vocalizations, changes of timbre, to an extent quite beyond the human voice or any single musical instrument; but the basis on which they are built is none other than that on which the music of the human voice and of musical instruments is built, and the one notation serves for recording them all. It is true the birds do not confine themselves to tones and semitones; they use these, but many intermediate divisions as well.

The scale in music is usually considered to be an artificial subdivision of a range of sound lying between two notes, one of which is composed of twice the number of vibrations per second that composes the other. This range is called an octave, and it comprises seven different notes, rising in pitch in a definite series from the lowest to the highest. The eighth note has a difference in pitch from the lowest, and a certain difference in sound; though if the two are sounded together a single appreciable sound results: their vibrations coincide, and, in addition to the coinciding vibrations, the higher note has an additional vibration midway between each coinciding pair; so that whilst one sound results when both notes are sounded together, the ear is easily able to detect its composite quality.

When, then, two notes, one an octave higher than the other, are sounded together, the singleness of the sound is apparent only. It is quite evident that there must be two sounds in the resultant note, and the ear is easily able to detect both. Furthermore, if the lower note be sounded alone, the ear is still able to detect the upper, though with much greater difficulty than when both are sounded together. Nor is this imagination only. The motion of every resonant vibrating body is more or less complex. It vibrates as a whole; and this, the principal vibration, gives the principal and predominant note. At the same time, it vibrates in two equal parts, each vibrating with twice the frequency of the whole, and producing accordingly a note an octave higher, but very much fainter, than the principal note. Nor is this all. The wire or string, supposing it to be a piano or violoncello, or other stringed instrument, in question, is subdivided into quite a number of portions, all vibrating with different frequency from the whole string, and so producing different sounds. All are normally, however, vibrating in definite and comparatively fixed proportions. The string is, as it were, divided first into two portions; then into three, four, five, six, and so on. Where the division is into two the vibrating parts give a sound an octave above the principal note, their rates of vibration being double that of the full string; where the division is into three, the vibrating parts give a sound a twelfth above the principal note, or a fifth above the first octave; where the division is into four, the vibrating portions give a sound two octaves above the principal note, as their rates of vibration are four times that of the full string; where it is into five, a sound a seventeenth above the principal note, or a third above the second octave; and so on. The full note is, in fact, composed of quite a number of different sounds, called harmonics or partial tones. Whilst they are present they are exceedingly faint, the smaller the subdivision producing them the fainter being the sound emitted, and the less distinguishable from the much fuller body of the principal note. The ordinary unaided ear is able to detect the first four or five partial tones only; yet the presence or absence of these and the higher partials determines the richness and quality of the resultant sound. The vibration of different materials produces different partials, or produces them in different degrees of intensity: the human voice is rich in the lower partials; in cymbals and like "noisy" instruments the upper partials predominate. The nasal quality of the oboe and clarinet is caused by the absence of the even partials—the second, fourth, sixth—and the presence of the odd—the first, third, fifth, seventh.

The harmonics or partial tones of the open G string of the violoncello are represented in the subjoined diagram:—*



The first partial tone is the principal note; the second is produced by the string dividing into two parts; the third by its dividing into three; and so on to the thirteenth partial here shown.

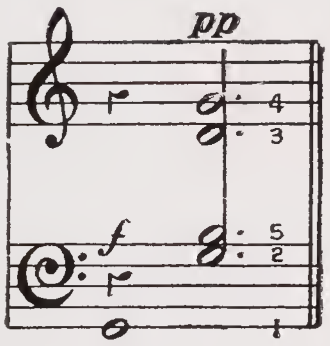
It seems hardly credible that such a number of notes should all be sounding when the G string is set in motion, yet the fact is, by mechanical means, quite demonstrable. It is easy for the ordinary unassisted ear to detect at least the lower partials. If the G be struck on the piano, and the sound be allowed to die away by keeping the damper from the wire, as the principal note becomes fainter the third and fifth partials, D and B, are heard, faintly but clearly. The second and fourth partials, being the first and second octaves of the principal note, whilst heard as clearly as the third and fifth, are not so readily distinguished, as they do not differ in actual sound, but in pitch only. They may be heard in this way: Hold down the key of the principal note, G, without striking the wire; then strike the G above it—the second partial—and after a second or two release the key, still holding down the lower G. The sound of the G struck, and of the G an octave above it—the second and fourth partials—will now be heard most clearly; and that they are heard in the string of the lower G, which has been set in vibration by the string struck, is made evident by the sounds ceasing immediately the key of the lower G is released. Thus it is evident that the unassisted ear

---

*From MOMIGNY, *Grove's Dictionary of Music*, Harmonics.

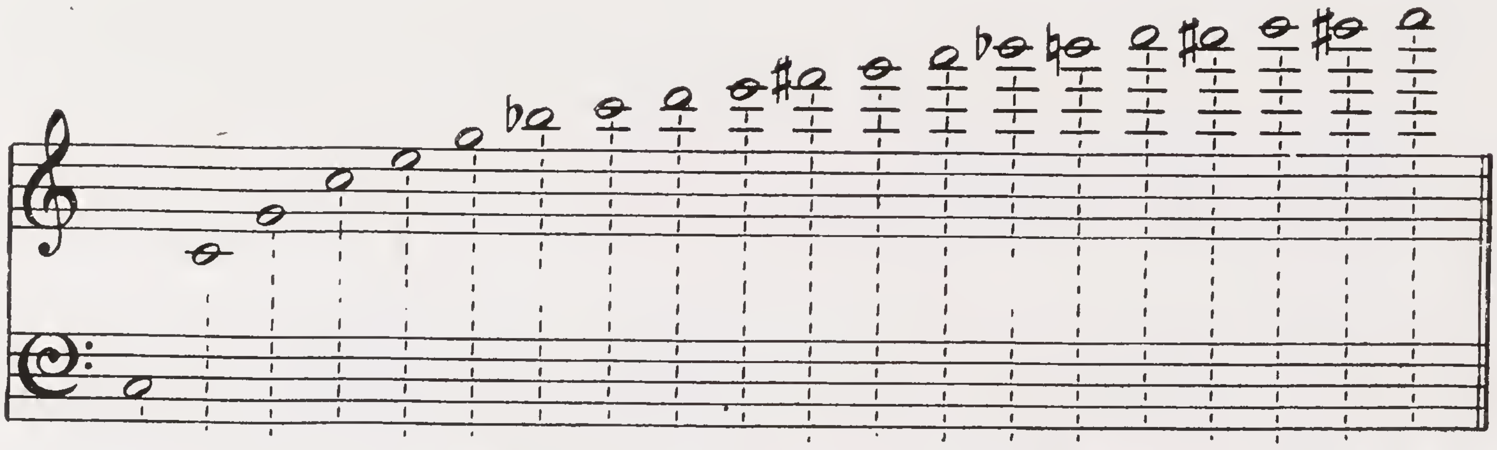
is able to detect the first five partials, or four besides the first partial, the principal note: some ears are able to detect more than these.

The result of this is far-reaching. Lower the fifth harmonic one octave; then strike the principal note G firmly, and immediately afterwards the second, third, fourth, and the fifth lowered an octave, together, lightly, as in the diagram. The sounds of the second to fifth partials, heard faintly when the principal note was struck, are now accentuated, and the common chord of G has resulted. This means that whenever a note is sounded the common chord of that note is also sounded, *and is heard by the listener,* though he may not be conscious that he hears it, as he may hear the ticking of a clock and not be conscious that he hears it until it stops, or until he consciously directs his attention towards it. He is conscious of the change in *quality* of a note, and this change is caused by a subduing, or an accentuating, of certain partials. The four partials heard with the lower G as above are the principal notes of the scale; the intermediate notes are derived from the higher partials.



Whilst, then, the scale, as a scale, may be an artificial production, the notes of which it is composed are natural productions, all sounding, in varying degrees of intensity, every time a musical note is produced. Science did not invent the scale; it merely explains the manner in which the scale came to be used unconsciously by singers from time immemorial. It must be remembered that until music came to be written in harmony—that is about the seventeenth century—there was no need for the term "scale." Mankind had been singing its melodies for hundreds of years without knowing such a term, and without feeling any need for it. Their ear was probably as true as the ear of the most skilled musician of the present day; certainly their melodies were equal to his in beauty. Not that the melodies themselves were fixed: they were common property, and singers varied them as the mood inspired, and as the ear allowed. It cannot be said of any particular melody that its preserved form was the form in which it was sung; all that can be said is that that is how it was sung at least by some. "Scales" were unknown, and "bars" also; and that it is possible to confine the old wild-song melodies within modern scales and bars is proof that the ancient artless music and the modern art of music have a common basis. All that is claimed for birds is that this common basis is the one on which their song, too, is built.

An objection may here be anticipated. The notes of the scale as used in modern music, where keyed instruments play such an important part, are not in every instance the natural notes;—some have been slightly altered in pitch, either raised or lowered, in order that all keys might equally be used in the production of harmony. The notes thus changed are said to be "tempered," and the modified scale is called the "tempered scale," to distinguish it from the "natural scale." D. Clarence Miller (MM, p. 64) has drawn up a table of the harmonics of C, showing the natural notes and the nearest corresponding notes of the tempered scale, with their respective number of vibrations per second:



Number of harmonic	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Vibrations per second	129	259	388	517	647	776	905	1035	1164	1293	1423	1552	1681	1811	1940	2069	2199	2328	2457	2586
Nearest note of tempered scale	C	C	G	C	E	G	B♭	C	D	E	G♭	G	G♯	B♭	B	C	C♯	D	D♯	E
Vibrations per second	129	259	388	517	652	775	922	1035	1161	1304	1463	1550	1642	1843	1953	2069	2192	2323	2461	2607
Difference	0	0	0	0	5	1	17	0	3	11	40	2	39	32	13	0	7	5	4	21

Taking the first eight harmonics, it is seen that the first four coincide; the fifth differs by five vibrations, the sixth by one, the seventh by seventeen. The eighth notes again coincide.

Thus of the harmonics heard easily by the average ear, the fifth only differs appreciably, and that by only five vibrations. It must be observed, however, that a keen ear may detect a difference of one vibration in a thousand; and violin players of good ear are inclined naturally to play the natural and not the tempered notes. In the natural notes G sharp, say, is slightly lower than A flat; in the tempered notes G sharp and A flat are the same, occupying a position midway between G and A. When birds' songs are recorded by means of a keyed pipe, certain of the notes appear very slightly sharp or flat; they are no doubt the natural notes that are sounded. I have used a pipe in either F or G, and no songs have been recorded in keys far removed from these two; as, whilst they may have been heard, my ear is not keen enough to record more than a short song without the aid of the pipe.

As regards the nature of a bird's song, I cannot, after long observation, agree that it is altogether, or even largely a sexual character. Assuming it to be a secondary sexual character, many facts can be brought forward in support of the assumption. Regarded from another point of view, however, bird-song may be seen as a characteristic quite apart from sex, but upon which on occasion sex seizes for its own end; and many equally cogent facts can be brought forward in support of this view. Many emotional elements mingle at the source of song, be it bird-song or human song, the sex-emotion being but one. Song is a flowering of the emotions, as speech is a flowering of the thought.

Mudie (MF, vol. 1, p. 273 *et seq.*) notes "the connection between the song and the plumage, and the silence and the moult"; and remarks that it "shows that the whole bird is subject to some general law, which, though it lies deep beyond the power of our divination, governs even the minutest circumstance—the production of a new spot or gloss on a feather, the reddening of a comb or a wattle, or the inspiration of courage into birds naturally timid. The birds, in fact, blossom in spring as well as the plants, and when the purpose of nature is accomplished the bloom of the one is shed as well as that of the other. But if the purpose of nature in continuing the race is not accomplished the bloom lingers.'' In the last sentence Mudie reveals his point of view—he regards the song as sexual; but he is wrong when he says the bloom is shed when the purpose of nature (or what he assumes to be the purpose of nature) is accomplished: song in birds extends before and beyond the breeding season; in some birds, like the thrush, it is interrupted only by the moult. No doubt it is finer during the breeding season, but then it does but augment with the general flowering of that season. Again, judging by the human analogy, when the purpose of nature is met by accomplishment, the bloom lingers longer than when the purpose is denied, the natural use of the natural functions reacting on and permeating the rest of the being beneficently.

It is supposed that caged birds sing for a far longer period than they do in nature, not because their surroundings are more conducive to song, but because the functions that called the song into being have not been fulfilled. Mudie contends that no caged bird sings with the full power and freedom of the woodland song. Bolton, on the contrary, asserts (BH, vol. 2, pp. 28-29) that ``in its wild state the nightingale sings only during some ten weeks of the year; but in confinement will continue its song for nine or ten months; and a caged nightingale sings with infinitely more sweetness than those abroad.'' In this ``sweetness'' Mudie recognizes ``a blending of the cry of irritation and distress.'' The two writers hear different qualities in the same song, each no doubt influenced by his own feelings.

A consideration of the period at which the song of various birds is at its perfection makes it evident that there is a mingling of various emotions in that passion of melody. The song of the nightingale continues day and night through the period of incubation, but ceases almost immediately on the hatching of the brood, when the sweet notes degenerate to a guttural croak. If, however, when the song has thus ebbed away, the nest be destroyed or its contents removed, the lost voice is speedily recovered, and the song is heard once more

(TB, p. 149 *et seq.*—quoting from Newton's Dictionary). It would appear to be altogether a mating and brooding song; but there are modifying facts to follow. The thrush, on the other hand, sings through the greater part of the year; and other birds, such as the robin and the water-ousel, sing during autumn as well as summer; and on this fact Darwin comments (DD, p. 370), "nothing is more common than for animals to take pleasure in practising whatever instinct they follow at other times for some real good." From the other point of view it might be said, Nothing is more common than for the sexual instinct to seize and use as incentive some quality that at all times gives pleasure.

Is it a sexual instinct that impels the male birds to precede the females in their migration? The males of most of the summer wood-warblers appear as much as a fortnight before the females (WW, p. 59), and immediately commence their song. The song is at first immature, gradually reaching its full perfection during the time the males are alone (CW, pp. 115-16). It is hardly likely that they sing without experiencing pleasure from their song, even in the absence of the females: can it be supposed that their pleasure is heightened by anticipation? Have they anything of the human emotion whereby

> We look before and after;
> We sigh for what is not?

It is probable that the song is an indication of the awakening and the stirring of sexual emotions, as the scent of the flower is an indication that it is ready for the touch of the pollen-grains; but the song comes with the emotions, not because of them—or why are so many birds songless? It is during this period of probationary song that the birdcatchers trap the nightingale. The birds then caught may be trained to become fine songsters; but if, after the arrival of the females, a male be trapped whose singing has secured him a mate, not only will he be of no use as a cage song-bird, but he will in all probability die in confinement (YH, vol. 1, p. 319, ed. 3). Bechstein (BC), an ardent bird-fancier, though he can hardly be called a bird-lover, states that the nightingale's song is perfect before the arrival of the females, and that it deteriorates immediately on their arrival; so that if it be a mating-song at all, it is rather a prothalamium than an epithalamium. It will be noted that Yarrell simply assumes that the singing of the male has secured him a mate. If the singing did so, or could do so, why should the song deteriorate at the very time it should be at its highest excellence? May it not be that the increased spring-vitality finds expression in song whilst the females are absent, and is diverted to the passion of mating when the females do arrive? One reason for the song being usually confined to the male is that the superabundant energy that in the male is transformed to song or to colour, in the female is absorbed in egg-laying and rearing. To this idea objection can also, of course, be urged by pointing out exceptions.

Further, if the precession of the males be a sexual instinct, it is not undertaken solely in order that the song may be practised without the distraction caused by the presence of females, since the males of most migratory birds, whether singers or not, appear before the females (DD, p. 212). So that the fact that the blackcap, nightingale, and other warblers practise their song before the arrival of the females would appear to be as much incidental as significant. Swallows usually arrive in pairs (WW, p. 59).

Is the song to be considered sexual when both sexes sing, as do the tui and bell-bird? I have detected no difference in the songs of the male and female tui. The song of the male bell-bird is quite different from that of the female, but the song of the latter is heard far more frequently; I have heard the song hundreds of times, but have heard the song of the male only twice.

Is there is a single recorded instance (except, perhaps, amongst caged birds) of a female having shown that the song of the male attracted her? I have never seen a single instance, nor have I ever heard of one. Twice I have seen a male blight-bird start his song, the female immediately flying to the attack, compelling him to desist. I have seen a tui sidling towards a female, singing a charming whisper-song—and the female sought refuge in flight. When the cicadas are singing in their thousands, never once has a female been seen to approach the joyous males; neither has a female thrush ever been seen to approach the male singing by the hour on the tree-top; nor has the song, either of cicada or thrush, lessened in consequence, either in volume or charm. If it be said that the female shows subsequently that she acknowledged the attraction, how is that known?

Birds appear to sing in emulation; and whilst emulation may indirectly be connected with courtship, birds will sing in emulation when courtship has ended successfully in the securing of a mate—when it may, indeed, be said that emulation has passed in a natural course to exultation. Bolton (BH, vol. 1, p. 15) writes of the blackbird, "when two are singing at the same time within hearing of each other they will contend in song like the nightingale, each keeping silence alternately till the other has repeated his song." Birds are often matched in song by fanciers, and will at times, at such contests, sing themselves to death; and some naturalists believe that singing is almost exclusively the effect of rivalry and emulation (DD, pp. 369-70). The editor of White's *Selborne* remarks (WS, p. 123) in a note that the song of the swallow exhibits no appearance of emulation, but that "it seems to proceed from feelings of happiness and complacency, which cannot be mistaken. I like to watch it darting now and then to its nest, and uttering that little note of love which is responded to by the female whilst she is performing her task of incubation . . ." On this point, how is it known that the brooding female pays special regard to the song of her mate? How is it known that she does not pay equal regard to the song of every bird singing within hearing? There is always the human analogy; and the human analogy, if we be honest, will lead us to most varying and contradictory conclusions.

Again, is it sexual desire, or emulation, or pleasure that induces one bird to imitate the notes of another—more, to incorporate the songs of others into its own, with characteristic modifications, as is done by the blackcap? This imitation is even said by one writer (YH, vol. 1, p. 420, ed. 4), to detract from the excellence of the bird's natural song. The imitation of other sounds by the starling is constantly referred to by ornithological writers. The sedge-warbler is said to imitate the notes of other birds, particularly those of the sparrow, swallow, and skylark, and has often been called the English mocking-bird. "It executes its imitations in rather a hurried but very pleasing manner" (BH, vol. 2, p. 69). True mocking-birds show the extreme to which imitation may be carried; but if imitation detract from the quality of the song, would that not be a fatal disadvantage were the song purely sexual? A certain amount of imitation is, no doubt, common enough, and Witchell (WE, pp. 165 *et seq.*) quotes many writers to this effect, the mimicking birds being the redstart, blackcap, sedge-warbler, marsh-warbler, reed-warbler, white-throat, skylark, whinchat, stonechat, wheat-ear, greenfinch, etc., and Witchell himself (WE, pp. 195 *et seq.*, and 201 *et seq.*) produces tables showing various bird-notes imitated by thrush, robin, skylark, starling, sedge-warbler, the different kinds of birds imitated by these five, numbering respectively thirty, twenty-two, fifteen, sixteen, and eleven. He also records the imitation of the barking of a dog by a starling, and even the bleating of a sheep by a skylark. At first one is inclined to agree with him; until as he accumulates evidence one grows doubtful, and finally sceptical. He goes too far.

The whole question of imitation, or mimicry, is, however, debatable. Certain notes and combinations of notes may be common to many species; certain ones are without doubt common to several, and many apparent imitations may in reality be natural notes; and of many it may be difficult to say which bird is the imitator, which the imitated.

No doubt imitation plays an important part in the education of the young bird, though it has not been shown why a young bird will imitate the song of its own species rather than that of another. Written evidence is again wildly confused. Romanes (RM, pp. 222-3) quotes Couch to show that "singing is certainly instinctive.'' Hudson (HN, pp. 89 *et seq.*) shows that at least the understanding of the significance of certain cries is instinctive. The Rev. W. Herbert, on the other hand (WS, note on pp. 131-2), makes very full observations on the learning of song by young birds, the gist of the observations being against the song being instinctive.

It may be that the knowledge of the song does lie deep within—unexpanded—in a bud, as it were, which opens in response to the throbbing of the song of the species; so that the free young bird adopts the song that finds the readiest echo in its own breast. Young birds vary in the docility shown in learning the song of other birds—see Witchell (WE, pp. 175-6), Wood (WW, p. 59), Bolton (BH, vol. 1, pp. 11, 30, 56)—the acquired song smothering or partially smothering, the natural song. The young cuckoo shows no docility whatever, but on leaving the nest responds to the natural song of its kind.

Human song gives wide expression to the emotions of love, of praise, of joy, of good-fellowship. It surely would be too much to say that the source of the whole is in the sexual emotion, the songs of worship and good-fellowship being merely secondary blossomings of the primary emotion; rather it would be nearer the truth to say that song is a natural expression of emotion, the expression being most developed, most exuberant, when the spring-tide of the blood is flowing; and that in song the sexual emotion finds a powerful ally, seizing upon it, but not creating it, for the furthering of its own especial and occasional end. That which is true of human song is true, in a larger degree, of bird-song; nor does this ascribe to birds a greater aesthetic sense than has already been ascribed to them by those who maintain their song is purely sexual.

Most of the songs recorded in the following chapters have been heard many times. There was never any doubt about the simpler phrases. Those with enharmonic intervals have been taken down, put by, taken down again at intervals of weeks or seasons, and compared,—until there is no doubt whatever that they are songs the birds know well, or that they are conscious of the intervals. I have heard a warbler deliberately sing a phrase first with an interval of a semitone, then a quarter tone; the bird sings with discrimination. The songs recorded are but a very small proportion of those that have been heard; many that have charmed me have been utterly beyond me;—a practised musician could catch many that have eluded me. A great many I have not even attempted to record, so intent have I been in the enjoyment of mere listening.

There is much of interest in a recent book by Dr. Walter Garstang. "It is usual," says he, (GS, p. 25) "to regard the songs of birds as essentially love-lyrics. With Warde Fowler, I doubt this. Love is only one of the emotions which stir a bird in the spring; and whether he be a good singer or a poor one, he never seems to lack a mate." Again (p. 36), "The bird is a minstrel, not a musician. But now here, now there, among the wandering troupes, a musical advance is made. We mark a distinctive flair about this latest troubadour, and we catch ourselves paying less attention to his words than to his melody. Indeed he pronounces his syllables so indistinctly that we can barely recognize them, while he resolves a chord upon his lyre which makes us throb. What is it? His comrades had charmed us with verbal wizardry, but he has given us a foretaste of pure music. . . . In short, music—the play of tone-sequences pure and simple—has emerged from song among birds as among mankind. . . . Not until song had built up the di- or tri-syllabic phrase, and by repetition of this at successive musical levels, or by union of different short phrases, constructed the flowing compound phrase, did bird-music reach the level of elementary human music; and these were aesthetic, not mechanical, achievements."

Many of the New Zealand bird-songs may be vocalized; that is, the bird appears to say things; but more are pure loops of exquisite sound, hung for a few charmed moments in shadowy recesses; and when a bird in a Beethoven rapture sits quietly singing a perfect theme with variations, from the minstrel we hear the musician emerging.

LIST OF AUTHORS QUOTED

WITH ABBREVIATIONS

BC	Bechstein, J. M.—"Cage and Chamber Birds, their Natural History" ....translated from the German of J. M. Bechstein, M.D., with considerable additions............by H. G. Adams. Incorporating the whole of Sweet's "British Warblers." London, 1877. (Bohn's Library.)
BH	Bolton, James.—"Harmonia Ruralis............British Song Birds." 2v. London, 1845.
BN	Buller, Sir Walter L.—"A History of the Birds of New Zealand." Ed. 2, 2v. London, 1888; and Supplement, 2v. London, 1905.
CC	Chance, Edgar.—"The Cuckoo's Secret." London, 1922.
CJ	Collier, James.—"The Pastoral Age in Australasia." London, 1911.
CP	Canterbury Papers, Nos. 1-11. London, 1851. (Information concerning the Settlement of Canterbury.)
CV	Cook, Captain James.—"An Account of the Voyages............by Byron,............Cook,............" By John Hawkesworth. 3v. London, 1773.
CVW	Cook, Captain James.—"The three famous Voyages round the World............James Cook." 1 vol. London. (Ward Lock Bowden and Co.) n.d.
CW	Cornish, C. J.—"Wild England of To-day." London, 1900.
DD	Darwin, Charles—"The Descent of Man." London (Murray), 1894.
EB	Encyclopaedia Britannica, 1911. Vol. 25, under "Song," col. 2.
FO	Forsyth, Cecil.—"Orchestration." London, 1914.
FY	Fowler, W. Warde—"A Year with the Birds." London, 1889.
GB	Guthrie-Smith, H.—"Birds of the Water, Wood, and Waste." Wellington, 1910.
GM	Guthrie-Smith, H.—"Mutton Birds and Other Birds." Christchurch, 1914.
GK	Grey, Sir George.—"Ko nga whakapepeka............Aotea-roa. Proverbial and popular sayings of the............New Zealand Race." Cape Town, 1857.
GO	Grey, Sir George.—"Polynesian Mythology and Maori Legends." Auckland, 1885.
GS	Garstang, Walter.—"Songs of the Birds." London, 1922.
HA	Hutton, Frederick W. and Drummond, James.—"Animals of New Zealand." Ed. 2 Christchurch, 1905.
HBNZ	Handbook for New Zealand, by a late Magistrate of the Colony [E. Jerningham Wakefield]. London, 1848.
HN	Hudson, W. H.—"The Naturalist in La Plata." London, 1892.
HS	Harting, J. E.—"The Birds of Shakespeare." London, 1871.
JP	Journal of the Polynesian Society. Vol. 1, 1892 (current) New Plymouth and Wellington.

KI	Kirk, Thomas W.—In *Ibis,* Jan. 1888.
MB	Mathews, Gregory M.—"The Birds of Australia." (Publication began in parts, 1910; still being issued.)
MF	Mudie, Robert.—"The Feathered Tribes of the British Islands," 2v. London, 1861.
MM	Miller, Dayton C.—"The Science of Musical Sounds." New York, 1916.
MS	Meredith, Louisa A.—"Some of my Bush Friends in Tasmania." London, 1860.
ND	Newton, Alfred.—"A Dictionary of Birds," 4v. London, 1893.
NZJ	New Zealand Journal, vols. 1-12. London, 1840-52.
OC	Owen, J. A., and Boulger, G. S.—"The Country Month by Month." London, 1902.
PO	Potts, Thomas H.—"Out in the Open." Christchurch, 1882.
RM	Romanes, George J.—"Mental Evolution in Animals." London, 1883.
RS	Reed's Edition of Shakespeare. *Winter's Tale,* Act 4, Sc. 2.
SCP	Swinburne, Algernon C.—"Collected Poems." 6v. London, 1904. Dedicatory Epistle.
SE	Seebohm, Henry.—"Eggs of British Birds." Sheffield, 1896.
SS	Shortland, Edward.—"Southern Districts of New Zealand." London, 1851.
ST	Shortland, Edward.—"Traditions and Superstitions of the New Zealanders." London, 1854.
TB	Thomson, J. Arthur.—"The Biology of the Seasons." London, 1911.
TI	Taylor, Rev. Richard.—"Te Ika a Maui." Ed. 2, London, 1870.
Tr.	Transactions of the New Zealand Institute, vol. 1, 1869 (current). Wellington.
TS	Thomson, Arthur S.—"The Story of New Zealand." 2v. London, 1859.
WA	Wakefield, Edward Jerningham.—"Adventure in New Zealand." (Reprint by Whitcombe and Tombs, Christchurch, 1908.)
WE	Witchell, Charles A.—"The Evolution of Bird Song." London, 1896.
WJ	Williams, Rev. Herbert W.—In Journal of the Polynesian Society, Vol. 15, 1906.
WM	Wohlers, Johann F. H.—"Memories of the Life of..........Missionary at Ruapuke............." Dunedin, 1895.
WN	Wood, Rev. J. G.—"Natural History Rambles." London, 1879.
WS	White, Gilbert.—"The Natural History of Selborne." London, 1861.
WW	Watson, John, and Winder, Blanche.—"Woodlanders and Field Folk." London, 1907.
YH	Yarrell, W.—"A History of British Birds," Ed. 3, 3v.; London, 1856; Ed. 4, 4v., London, 1872-74.
YN	Yates, W.—"An Account of New Zealand." London, 1835.

Family : Muscicapidae

THE FLYCATCHERS

Britain has two representatives of this family, the spotted flycatcher, and the pied flycatcher, both summer visitors. The former, apparently, has no song, whilst that of the latter is very feeble.

New Zealand has two flycatchers, known as fantails:

Rhipidura flabellifera	the pied fantail	piwakawaka
Rhipidura fuliginosa	the black fantail	tiwakawaka

The pied fantail.—Head and neck blackish-grey with white throat and eyebrows: the back brown, the breast and abdomen yellowish-rufous: the two middle tail-feathers black with white tips, the outer ones white, the intermediate white with outer webs partly black, all shafts white: eyes and bill black, feet blackish-brown. Length 6½ inches, of which the tail is 4 inches. The sexes are similar. In the young the upper surface is more or less shaded with rufous, the lower surface with tawny.

The black fantail.—Head and neck greyish-black, with a white spot over each ear; rest of the body dark chocolate-brown; quills dark brown, tail black: eyes and bill black, the latter white at the base of the lower mandible. Length 6½ inches, of which the tail is 4 inches.*

Eggs.—Four; white, marked with brown freckles or small patches, arranged in somewhat circular fashion towards the larger end; length ⅔ of an inch, breadth ½ an inch. There are two or three broods in a season, a new nest being built for each brood.

Nest.—A beautiful structure, built with no attempt at concealment, preferably near water, where the birds find much of their insect food. Both birds take part in the building,

---

*Descriptions of the birds are from Hutton and Drummond's *Animals of New Zealand*, and Buller's *History of the Birds of New Zealand.*

though the shaping of the nest is mostly done by the female. The foundation is laid by securing splinters and shreds of decayed wood to the slender branch by means of cobwebs, and upon this is raised a closely-felted cup of fine grasses, thread-like roots, dead leaves, and tufts of moss. While building, the outside is kept higher than the inside, so that at an early stage the nest is saucer-shaped. The materials are well trampled, knitted together, and compacted with liberal quantities of spider-web. As the wall rises, the bird, seated in the centre, turns round repeatedly, fluttering the wings, pressing down the rim with head and chin, pulling the materials towards the centre. More and more spider-web is used as the nest takes on the cup-shape and nears completion, the result being a compact, closely-felted, perfectly round structure, springy when pressed between the fingers, beautiful to see. The cup, which is about 1½ inches in depth, is lined with fern-down and the slender fruit-stalks of moss, but no feathers.

A nest may be built in four days, though it has been known to take seventeen. One nest observed by Potts was begun on the 23rd October, finished on the 27th, when it contained one egg; there were three eggs on the 29th, and four young hatched on the 14th November, the nest being quitted on the 27th. Thus the building of the nest, laying, incubation, and maturing of the young, all took place within a month.

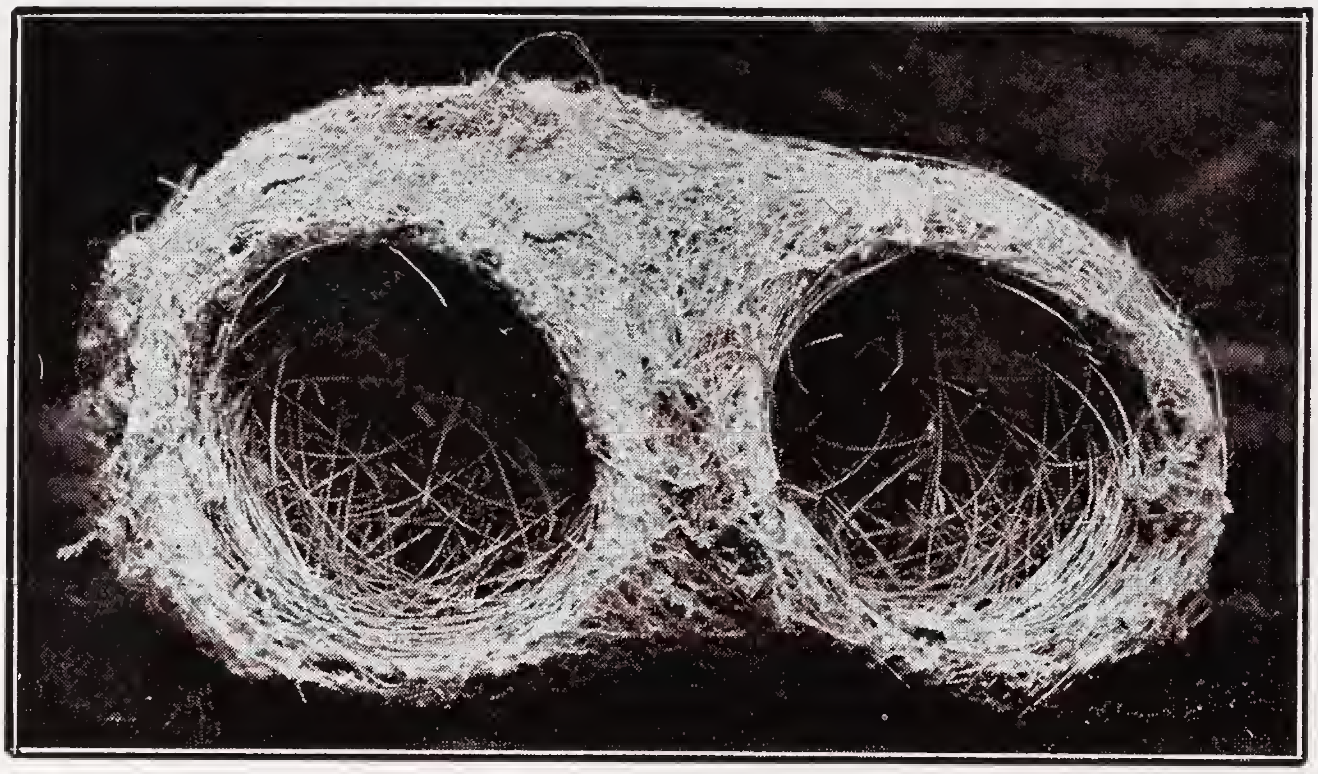
The female sits very closely on her eggs, maternal instinct being then stronger than natural fear. It is recorded that in slashing a survey line a branch of tawhara was cut and fell to the ground, when it was seen it contained a nest. Although it fell upside down the bird was still on the nest, clinging so tenaciously that the four eggs were prevented from falling out. The bird sat with eyes closed, and after being partly lifted off so that the eggs might be counted, it settled down into the nest again. The branch was carried out of the way and fixed in another tree, in the hopes that, in spite of the inadvertent rough usage, the brood might still be reared. The nest has been found daintily balanced and fixed on the mid-rib of a tree-fern frond.

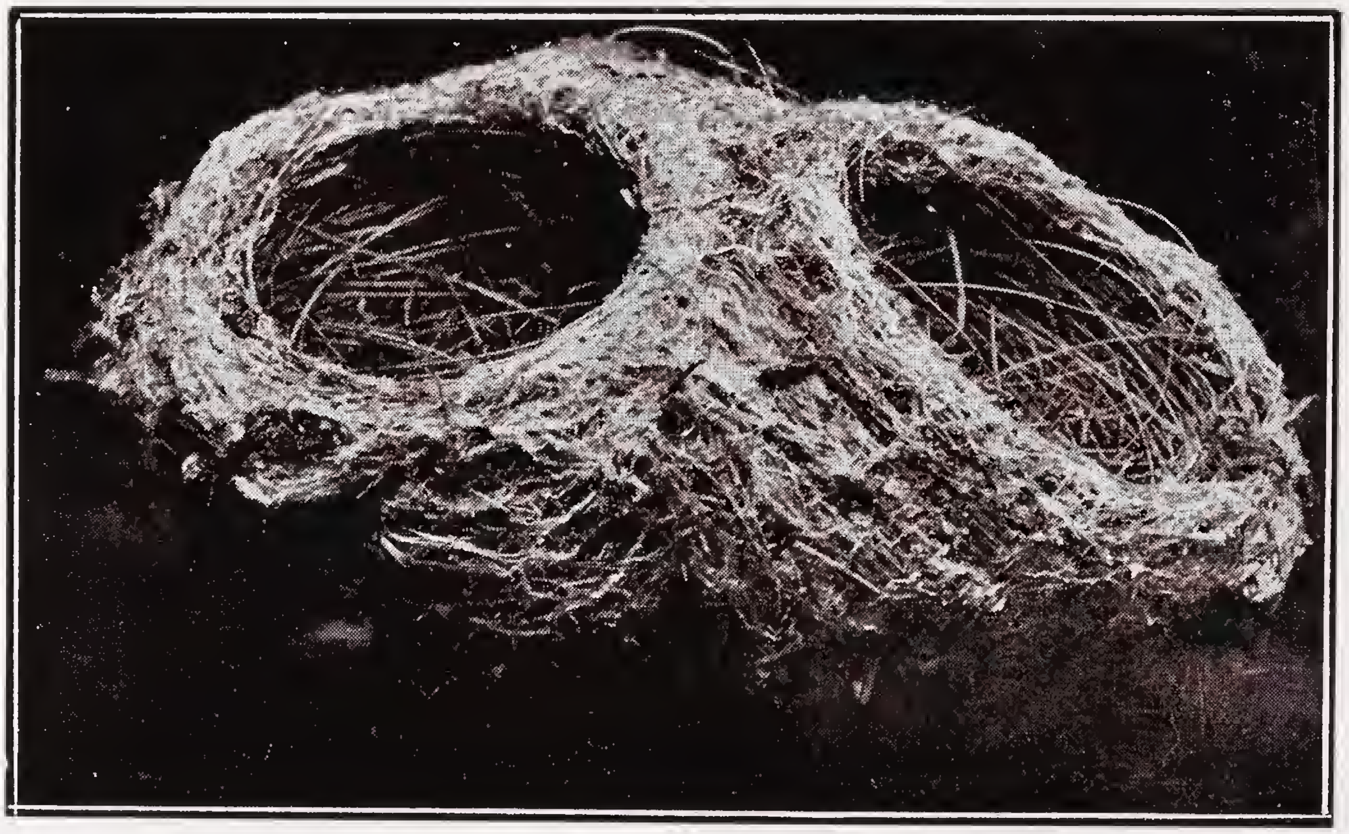
Some variations in details of shape have been found, and a nest may be added to when once apparently completed. A curious characteristic sometimes seen is the ornamentation of the nest by the attaching by means of cobwebs of fragments of decayed wood to the base of the nest: this forms a tassel that sways in every breeze.

A nest obtained from Muritai, near Wellington, was built on an almost horizontal branch of mahoe (whitewood), and partly around the smaller upward-springing branchlets. The foundation and a little more than a third of the lower part of the nest is composed of yellow decayed wood mixed with a little moss, consolidated with hanks of spiderweb; the upper part is moss and fine grass-bents, with occasional shreds of wood, all very firmly and evenly woven, compacted and felted with spiderweb: the cup is lined with tree-fern down, dark brown in colour. The measurements are:—Inside of cup, 1⅞ in. across, 1¼ in. deep: whole nest, outside, 2¼ in. across, 2¼ in. from branch to edge of cup, pendant of decayed wood 2½ in. long.

In the season of 1921 I received a double nest, found by the school-children of Wellsford School, North Auckland. The two nests are built close together, one common wall dividing them; both are set at an angle, the common central wall being higher than the outer walls. The whole nest is very compact and neat. The foundation is as that of the above-described nest—yellow decayed wood and a little moss; the sides are of moss, pale yellow, brown, and pale greenish, a few shreds of grass-blades, and small coprosma leaves, all as before closely and neatly felted with spiderweb. The cup is lined with fine grass-bents, the under layers bowed across the cup from side to side, the covering layers round it, circling parallel with the edge: these bents help to give the pronounced springiness to the nest. The measurements are:—Inside of cup, 1¾ in. across, 1¼ in. deep; whole nest, outside, cup 3 in. across, 5½ in. across the two nests, central height, at angle where both join, 3½ in.

It is not known if the nests were occupied by two, three, or four birds; the nest was blown down before the lining of the





[*J. McDonald, photo*

Fantails' double nest, from Wellsford School, near Auckland.
Top view and side view.

In my book on Bird-
the 1923 season, a fa
school, North-Aucklan
the 1921 season four th
Bird-song, p. 35 – 6

Such double nests ma
have not been recorded –

In the year 1921 I
of the Wellsford school.
together, one common wi
the common central wal
nest is compact and nea
wood and ~~[illegible]~~. a little mo
and pale greenish. a f
ma- leaves, all so clos

volubility of the pied bird is apparen
two birds came to the call. One was dark, the body above and below being a beautiful dark rich warm brown, the wings and tail jetty black; the other was pied. The former sat comparatively quietly; but the little pied paragon constantly moved about and about, displaying to the full its almost erect, long, spread, rounded tail, spreading its wings downwards from the body at the same time, fluttering about very daintily, now

In my book on Bird-song, 1926 I noted that I had received, in the 1923 season, a fantail's double nest from the children of Wellsford school, North-Auckland (illus. Bird-song p. 22) Before that, during the 1921 season four thrushes' double-nests were found, as detailed in Bird-song, p. 35 – 4

Such double nests may have occurred before, but so far as I can learn have not been recorded before

In the year 1921 I received a double nest, found by the children of the Wellsford school, North Auckland. The two nests were built close together, one common wall dividing them; both are set at an angle the common central wall being higher than the outer walls. The whole nest is compact and neat. The foundation of the nest is a little decayed wood and ~~moss~~, a little moss; the sides are of moss, pale yellow, brownish and pale greenish, a few shreds of grass-blades and small Coprosma-leaves, all ~~so~~ closely and neatly felted with spider-web finished

cups was quite finished, and it contained no eggs. In the same season, at Kaukapakapa, Auckland, three fantail nests were found on one small branch of manuka. Two of the nests were only four inches apart, the third six inches from these. The breeding fantail is usually regarded as a pugnacious bird, but this seems to contradict the impression, betraying an unsuspected sociable disposition.

A note on other double nests discovered, may be found in the chapter on the thrush.

Habits, etc.—Both birds are fairly abundant throughout New Zealand. The black fantail is, however, much less common in the North than in the South Island. They range from the seashore to the high lands of the interior, haunting the homes of men with as much cheerful confidence as they haunt the bush-clad valleys. They show little fear of man, and boldly enter by open door or window to hawk for flies.

Though very different in appearance, the two differ little in habits, the black species being perhaps less restlessly active than the pied. The pied male mates with either pied or black female, and the black male similarly with either black or pied female. In the young of the mixed unions, however, the whole brood is either pied or black.

The fantail is one of the most lively of the bush birds. It is often solitary, sometimes in pairs; and if in the neighbourhood can always be called with the lips and leaf twirled in the fingers. I have had five at one time come to the call, almost within reach, tweeting and singing and gyrating in perfect fearlessness. Of these three were black, and two were pied; and it is when they are together that the greater vivacity and volubility of the pied bird is apparent. On another occasion two birds came to the call. One was dark, the body above and below being a beautiful dark rich warm brown, the wings and tail jetty black; the other was pied. The former sat comparatively quietly; but the little pied paragon constantly moved about and about, displaying to the full its almost erect, long, spread, rounded tail, spreading its wings downwards from the body at the same time, fluttering about very daintily, now this way, now that, showing first the pure white underside of the tail, then the upper side with central black feathers, and side feathers black along their outer length and white along their inner,—folding and opening its three fans, and tweeting with cheerful, bright-eyed insouciant exuberance. It usually lingers near the floor of the bush, but may at times be seen hawking insects about the tops of the highest trees.

Whilst albinos of many of the birds of New Zealand have been seen, there is no record of an albino fantail; but such birds do probably occur.* From correspondence with a half Maori of considerable education and ability, I have learned that in his boyhood a white fantail flew into the dwelling-house of his parents. Such an occurrence had an occult significance with the Maori, and his Maori mother was greatly perturbed, believing it to be the spirit of some person lately dead. His pakeha blood was also moved by the phenomenon, but for a different reason; he wondered at the extreme novelty of a white fantail.

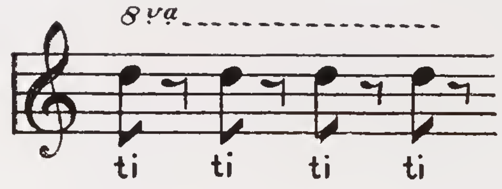
All notes are uttered, and songs sung, either whilst the bird flits from side to side on the bough, or darts here and there whilst gamboling, courting, or pursuing its insect prey. Even when alone, the birds are most entertaining, with their air of confidence, their undisguised vanity, their ceaseless evolutions; but when two appear together they are doubly entertaining. I witnessed a chattering flirtation between a black and a pied bird; but their cajoleries suddenly and shamelessly ceased on the appearance of a fluttering moth, in pursuit of which both set off. Their beaks snapped audibly as they time and again aimed at and missed their prey,—which finally escaped.

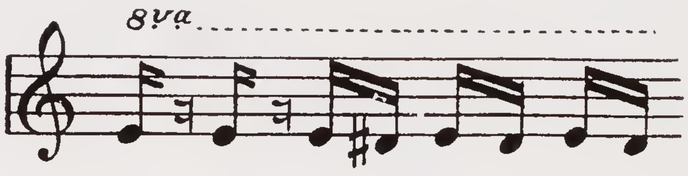
The song may be heard through a greater part of the year, though less in the three months March to May, the silent part of the year as regards bird-song. The note passes from a sustained tweeting, or chatter, through a doubtful warble, to a cheery whistled song of fair compass and considerable variation.

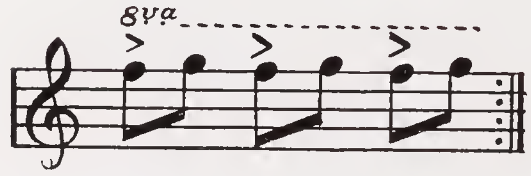
---

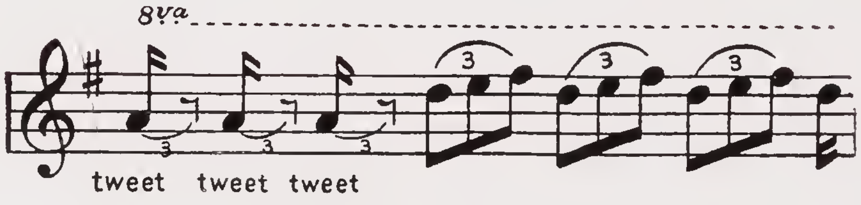
*Since the above was in print I have seen, March, 1926, a perfect albino of the black fantail in the Wanganui museum.

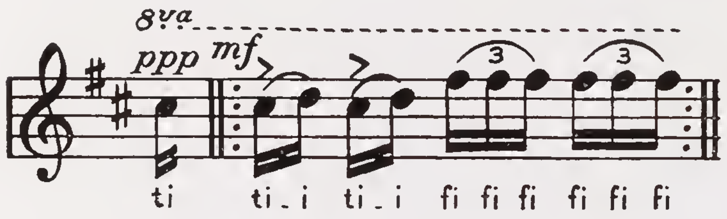
The note most commonly heard is a tweet, or twitter, coming as if through a restricted aperture, the vocalization constantly varying. The note is usually uttered in short, quick, irregular phrases, of a conversational rather than a singing nature. When the song is composed of the tweeting note only, it hovers very much on the same note, rising or falling by quarter tones through an interval of a tone or less, and dropping occasionally to a longer note four or five semitones below the general pitch. Such a song may continue for half a minute without a break.

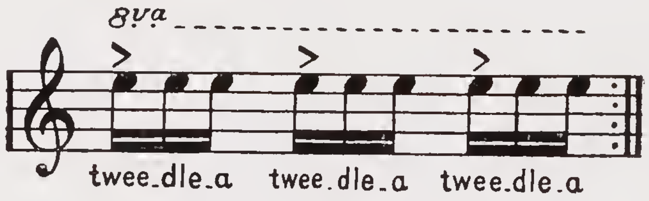
1


2


3


4


5


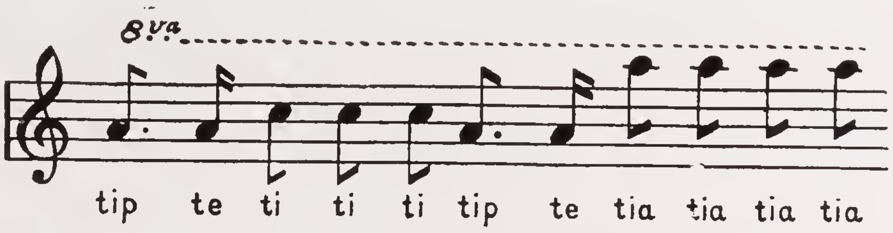
6


It is in the tweeting notes that the words "Pretty creature, pretty creature" have been heard, as if the vain little bird, conscious of its beauty, were attracting the attention of the observer, displaying its charms,—coquetting even with a human being.

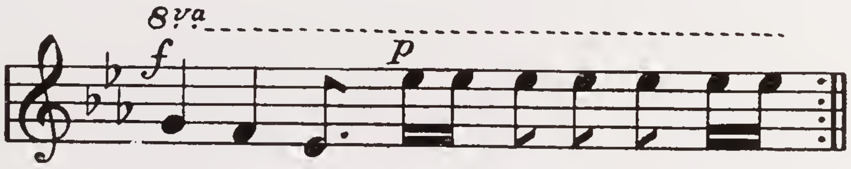
The notes of (1) were the call-notes of pied fantails, the vocalization being *ti ti* (the *i* short, as in *tip*). The usual call-note is a single note of this kind, or a similar note combined with a slur, as in (2). The notes of (1) were uttered at the rate of about five in two seconds.

Pure whistles may be sung alone, as in (3), or combined with *tweets* as in (4), pitch and intervals varying in different birds, or on different days. The interval may fall instead of rise, and the pair of notes may become triplets, as in (4) to (6): the whistling notes may also become vocalized. The snatch (4) was a delightful, bright song, with definite whistled theme introduced by tweets. It was sung by a black fantail in May, the first month of winter, two birds being together. The morning was sunny and dewy, thrushes also singing freely. In (5) the part enclosed in bars was sung in about two seconds, and to form the song was repeated several times without a break, the soft introductory note being omitted. The pairs of notes at the opening of the theme were slurred, and at times there were three pairs instead of two. More fully vocalized were the notes of (6), the series of nine notes being sung in a

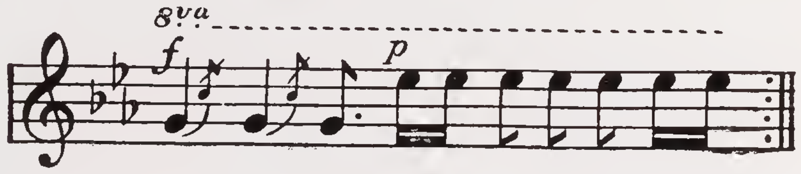
7



8



9



little over a second. The unusual combination (7) was heard several times on the island Kapiti.

There is indication of theme in many of the songs, but "time" is generally suggested rather than actually present. In (8), however, theme and time are both quite definite. This song was noted in Christchurch during April. The opening notes were still the constricted almost vocal sounds of the tweeting songs, but the upper *e* was nearer a sweet, pleasant whistle. This song was long-continued; sometimes it opened with the common *tweet-a-tweet-a-tweet,* sometimes directly on the clearer yet restricted *g*. The intervals were precise, and the notes sung legato. During the same autumn the variation (9) was much more commonly heard.

The beak is usually closed whilst the bird is singing, or no opening can be perceived. Once, however, I saw the bird utter the whistling pairs of notes, in falling sequence, with beak wide open, closing slightly at each drop. I have heard the notes, half converted to tweeting, sung by one bird whilst flying in playful evolutions with another.

Maori myth.—I am not sure that it is altogether friendliness that makes the fantail so tame, or whether it is not rather sheer curiosity or even pugnacity. A black fantail has been seen by Potts (PO, p. 159) ''in hot pursuit of a bronze-wing cuckoo, driving it screaming, far away from the precincts of its home;'' and on two occasions, when I have called to fantails sitting close by me, they have uttered their rapid *tweet tweet* facing me with mouth agape as they jerked from side to side; and it must not be forgotten that when the sea-birds came in their great flocks to attack the land-birds, the fantail was the first to fly to the assault; for it happened in this way:—

The saltwater-cormorant in its flight reached Whangape, and there found the river-cormorant. The former waited to be offered food in vain, and at last said—''Friend! Let us go to my home at the salt sea where food is plentiful.'' Whereupon they set forth and flew to the sea, where the sea-bird dived and secured a fish for the river-bird. But the latter sorely wounded its throat with the spines of that fish, and said—''Your food is not good; that of my home is much better.'' ''And what is the food of your place?'' asked the sea-bird. ''Eels: which when swallowed are smooth and slippery, and do not injure one. I say to you, let us go to my place.''

So off they went, and on their arrival, the land-bird dived and secured an eel and gave it to the sea-bird, who first swallowed it, and then brought it up again with the greatest ease. Quoth the sea-bird—''O friend! yours is indeed an excellent place and your food most desirable. Now do you give me a part of your domain and I will give you a part of mine in return.'' ''Not so,'' said the land-bird, ''I do not like your place.'' ''Very well,'' replied the sea-bird; ''but ere long I will take your place from you.''

Then the sea-bird set forth to its own realm in order to raise an army to seize the home of the land-birds, and assembled all the tribes of sea-birds so that a grand attack might be made.

The river-cormorant heard of the great preparation, and collected a great force of land-birds to resist the attack. Many tribes rose to the call. There came the kuku, and kaka, and tui, and honge, and ruru, and pirakaraka, and pitoitoi, with many others; in fact, when all had assembled the gloom of night had fallen across the world of day.

When Hine-ata, the Dawn-maiden, arrived, then arose pitoitoi (the robin) to rouse the party, crying—"*Pi toi toi toi!*" and all awoke from sleep. Then said kawau (the river-cormorant), "Who will go forth as a scout to observe the advancing army?"

Koekoea (long-tailed cuckoo) cried—"I will go. When you hear me call you may know that the enemy is located." Forth went koekoea, who soon spied the army of sea-birds approaching with karoro (sea-gull) in the lead. Then the cry of koekoea struck upon the ear—"*Ko o o e!* and karoro shrieked—"*A ha!*" Then koekoea returned and reported.

Kawau enquired—"Who will advance and challenge the enemy?" And pirakaraka (fantail) said—"I will challenge."

Even so pirakaraka went forth with his weapon, his taiaha, and danced and glared and grimaced before the enemy after the manner of a challenge, crying his challenge, thus—"*Tei! tei! tei!*" Then to the column he returned and sank to earth.

Again kawau enquired "Who will repeat the war ritual over us?" Quoth tui—"I will conduct it, and let honge (crow) commence the air of the chant, tiraueke (saddle-back) recite the words, and tane-te-wai-ora(?) the invocation, and pipi-wharauroa (shining cuckoo) conclude the ritual, and kuku (pigeon) make the final response."

Then tui commenced the ritual and honge gave the tune, and tiraueke recited the words, and pipi-wharauroa concluded with his well-known cry of "*Kui! kui! kui! whiitiwhiti ora!*" All these performed their parts, and then sat down, whereupon kuku responded with his cry of "*Ku u!*"

Once more kawau enquired—"Who will begin the battle?" Ruru (morepork) rose and said—"I will."

Arose ruru, uplifting his weapon, his pouwhenua, his eyes glaring at the army of sea-birds as it advanced, and calling to them—"You are brave! You are truly gallant folk!" Such were the jeering words of ruru.

Then rose kaka (brown parrot) and glared at them in defiance as he advanced with his weapon, the O kaka stone, and screeching —"*Taka rere! Taka rere! Kia iro! kia iro!*"

So closed in battle the sea and land-birds, and, ere long, fear struck those sea-birds, even so that they turned, and broke, and fled. Yet even as they fled the laugh of parera (grey duck) broke forth—"*Ke ke ke ke!*"

Fled the sea-army to its own realm, while the land-folk ever dwelt in peace, losing no part of their domain to the sea-folk;—indeed, it was the laughter of parera that caused such wild flight to their home, wherefrom the sea-birds have never returned.

This is the most characteristic of several versions of this Maori folk-myth: it was culled by Elsdon Best, New Zealand's foremost Maori ethnologist. An earlier version, by an earlier collector, Colenso (Tr. Vol. 11, 1879, p. 101), contains a fine description of the coming of the sea-birds, and also concludes with some curious Maori bird-lore, for which part is quoted:

"Ere long the immense army of the sea-birds appeared, sweeping along grandly from one side of the heavens to the other, making such a terrible noise with their wings and cries. On their first appearing, the long-tailed fly-catcher (pied fantail) got into a towering passion, being desirous of spearing the foe, and danced about presenting his spear on all sides, crying '*Ti! ti!*' Then the furious charge was made by the sea-birds. In the first rank came, swooping down with their mighty wings, the albatross, the gannet, and the big brown gull (ngoiro), with many others closely following; indeed, all the birds of the sea. Then they charged at close quarters, and fought bird with bird. How the blood flowed and the feathers flew! The river-birds came on in close phalanx and dashed bravely right into their foes. They all stood to it for a long time, fighting desperately. Such a sight! At last the sea-birds gave way, and fled in confusion. Then it was that the hawk soared down upon them, pursuing and killing; and the fleet sparrow-hawk darted in and out among the fugitives, tearing and ripping; while the owl, who could not fly by day, encouraged, by hooting derisively 'Thou art brave! thou art victor!' (*'Toa koe! toa koe!'*) and the big parrot screamed, 'Remember! remember! Be you ever remembering your thrashing' (*'Kia iro! kia iro koe!'*)

"In that great battle, those two birds, the titi (petrel, mutton-bird), and the taiko (a bird apparently known only by name) were made prisoners by the river-birds; and hence it is that these two birds always lay their eggs and rear their young in the woods among the land-birds."

The Maori declares that his haka, the war dance, was learnt from the fantail; that is, a characteristic part of the dance, the quick jump from side to side with brandishing of weapon.

Potts noted (PO, p. 156) that the fantail, when feeding its young, does not visit the nest with each insect captured, but is able to keep many insects in the mouth at one time; nor does this interfere with its catching others, or with its uttering the twittering notes. I saw a bird catch a daddy-long-legs, and swallow it, wings and all; and the bird looked most ludicrous when the body had disappeared and the legs still protruded like feelers from the side of the gape;—as ludicrous as the wriggling legs of Maui must have looked to the fantail.—

For during his last exploit, his attempt to overcome the Woman of Night, the Mother of Death, Maui chose as his companions the small birds of the forest, and these accompanied him to the darkness of the west, where lay the dread woman asleep. Maui admonished the birds as they neared the woman; they must make no sound, or they would awaken her before his purpose was accomplished. The birds were silent. Maui stooped, so that he might creep through her, and win for mankind life,—or death. He entered the Woman of Night, as far as his shoulders, as far as his middle. Then it was that the lively fantail, no longer seeing the earnest features of Maui, but seeing only the wriggling limbs as he strove to pierce the darkness, broke the stillness and burst into tiny chattering laughter. The

Woman of Night awoke; the hero was nipped in two; and Night and Death were victors.

The myth has been related in many forms, and has often been travestied. It is part of a beautiful solar myth, Maui being no other than a sun-god, or light personified. His westward journey is the setting of the sun; and the birds silent in the middle part of the day, awaken again to cheery song in the afternoon and evening accompanying the hero to his daily conflict with Night.

Of the nineteen Maori names recorded (WJ, p. 198), all are more or less echoic; the two in general use are those given at the opening of the chapter.

Family: Turdidae

THE THRUSHES

Britain has six birds of this family; three permanent residents,—the missel-bird, the song-thrush, and the blackbird;—and three visitors,—the redwing and fieldfare in winter, and the ring-ouzel in summer.

The thrush and the blackbird are, apparently, the two best songsters of the family. Linnaeus considered that the song of the redwing rivalled that of the nightingale, but Yarrell disagrees with him, thinking the song of the song-thrush, which that of the redwing resembles, "infinitely superior." Linnaeus, however, wrote of the song as heard in Lapland, where it is quite possible that the song is finer than that heard in Britain, which is not the native home of the bird. Of the fieldfare, Yarrell says that the "song is poor, though by some called soft and melodious,"—again a difference of opinion probably caused through difference in ear, or difference in observation. The song of the ring-ouzel resembles that of the blackbird, and is a "plaintive melody, consisting of a few notes uttered in a clear and warbling whistle."

New Zealand once had two species of thrush, so-called, one for each island, the North and the South: a third species was found in the Chatham Islands. This is one of the birds that has retreated before the advance of civilization, and is now almost extinct.

In place of it, however, New Zealand has gained the British thrush. This has become acclimatized in all parts of the islands. It is heard almost the whole year round; and the gardens and shrubberies about the towns and cities, the plantations of the open country, the clumps of Maori bush even in the high alpine regions, are thickly peopled with the joyous thrush.

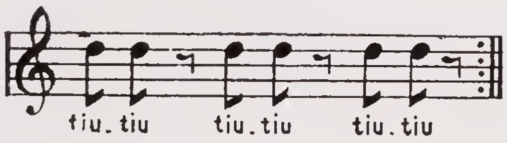
During my daily business walk in the cities of Wellington and Christchurch, I have heard the singing of the thrush,—

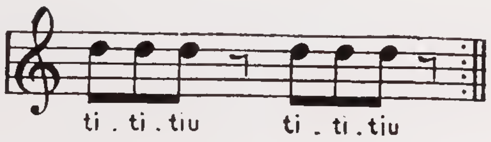
and I hardly know what is most admirable in the bird;—its vivid, beautiful renewed plumage of June and July, its bright-eyed fearlessness as it runs on the dewy lawns, or its full rich bursts of song. I do not know a more inspiring sight than a thrush on the topmost shoot of a grey-bloomed Douglas fir, singing rapturously on a warm day of misted rain;—it is as though the mounting life of the tree had risen up, and up, and were throbbing from the lofty youngest shoot in a fountain of sound, a living embodiment of song.

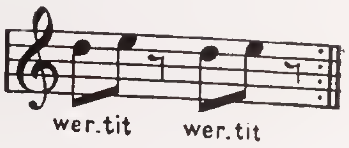
The thrush is among the first to start the year's song, the old birds with the assurance of practised singers, the young of the past season with the hesitancy of beginners. Within a distance of half a mile I in one season daily passed five birds, always practising, each in its own tree, and always on the same twig.

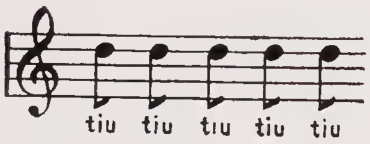
One year I observed a learner from the very beginning of his practising; and as I passed, morning by morning, I wrote down the new notes of his awakening song. The first song of that season was heard on the 30th April, the last day of autumn; many birds were developing their singing-voice by the end of the first week of May. It is noticeable that the birds appear to brighten up and find their voice when the frosty air of May and June makes the skies blue by day, and the stars sparkling by night.

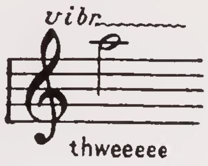
On the 21st May I saw the learner actually begin his practising. He started with the simple notes of (1), triplets of the same notes, as in (2), and the first simple interval, as in (3). It was noticeable that, whilst the vocalization of the pairs and triplets was *ti* or *tiu*, that of the notes of the interval was *wer-tit.* Next day the fives of (4) were practised, in addition to those acquired the day before. There appeared to be no order in the practising;—the pairs of (1) might be uttered once, twice, or up to five times, but usually thrice; then (3) or (2) once or several times, but (2) usually twice, and (3) thrice, then (1) again, or (5), and so on, over and over, by the hour. On the second day (5) also was added,—a very rapid vibrato on one note (not a tremolo), as though the sound were forced through a narrow slit, the membranous edges "giving" as the sound passed: it was not a whistle, or vocalized whistle, like the other notes. On this day, too, the 22nd May, a downward interval was added, the vocalization again changing,—*wee-oo* (6); and in (7) a combination took place, of pairs like (1) and an interval like (3), the interval containing three semitones instead of two.

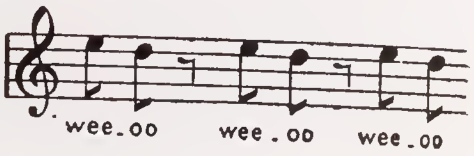
1


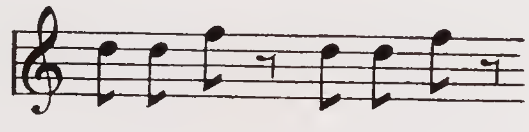
2


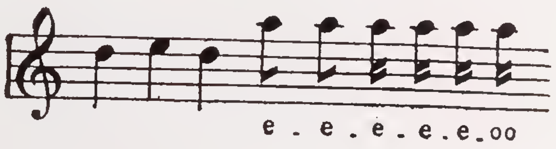
3


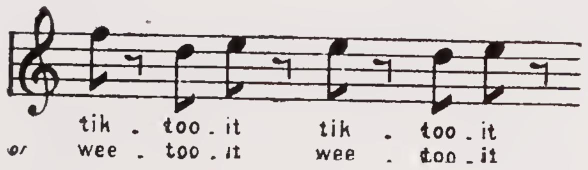
4


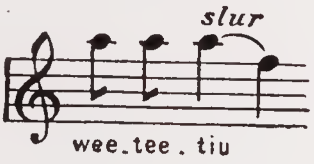
5


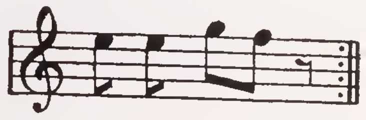
6


7


8


9


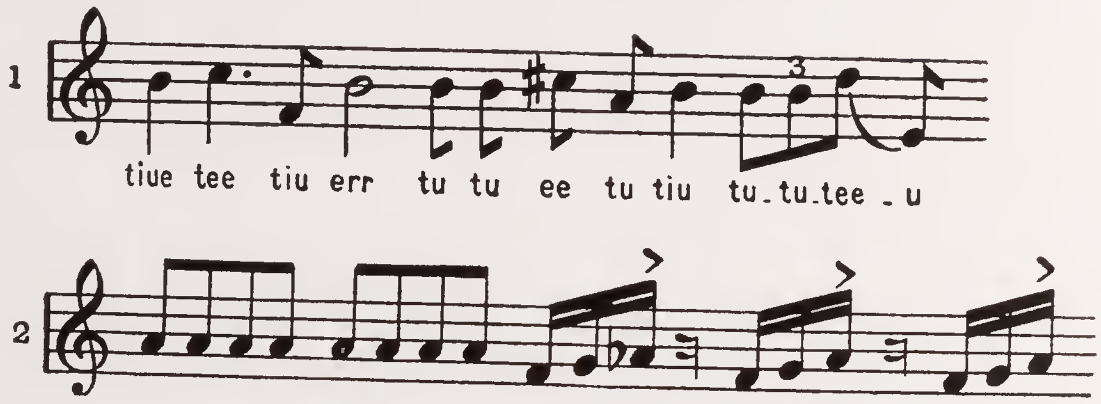
10


11


These notes were true whistles, full and rich in quality; they gave no trace of vocalization. The slower notes of (8) were also whistles, the higher notes, vocalized, somewhat resembling (5), in that they sounded as if forced through a narrow aperture, the last four quickening to a vibrato. It is the varying from whistle to vocalized note, and the wide range of varied vocalization that give the song of the thrush its great variety. At times the richness of the vocalization almost equals that of the human voice. On the 25th May, the familiar phrase (9) was commenced, and now the song developed rapidly; (10) and (11) were introduced, and many other combinations. Up till this day most of the new notes could be taken down, those noted being the ones most often heard. Combinations of three and four were introduced, but as the only time I had for noting them was during a few loitered minutes coming and going, the notes soon became too numerous for me to keep count of. The bird had more leisure for practice than I for observing;—he would be singing before breakfast-time, still singing on my return at luncheon-

their choice of singing-coign the two birds display their different natures;—the thrush enjoys the wide prospect afforded by the lofty tree, the open gallery; the blackbird enjoys the intimate seclusion afforded by the densely-leafed bush or shrubbery. This is speaking generally; I have seen a blackbird more than once singing from a lofty tree, and have passed close by a thrush singing in a secluded glade.

Because of his retiring nature, I have rarely seen a blackbird whilst actually singing, so am unable to record any of his practice-notes; and the thrush and the blackbird have so many notes in common, that I must confess I am unable to say, for certain, from the song alone whether the singer is thrush or blackbird.* The same is true of tui and bell-bird, and all songs recorded are such as have been sung by birds actually seen. There is a study awaiting to be taken up in the songs of these two birds alone. One blackbird strain may be given (1).



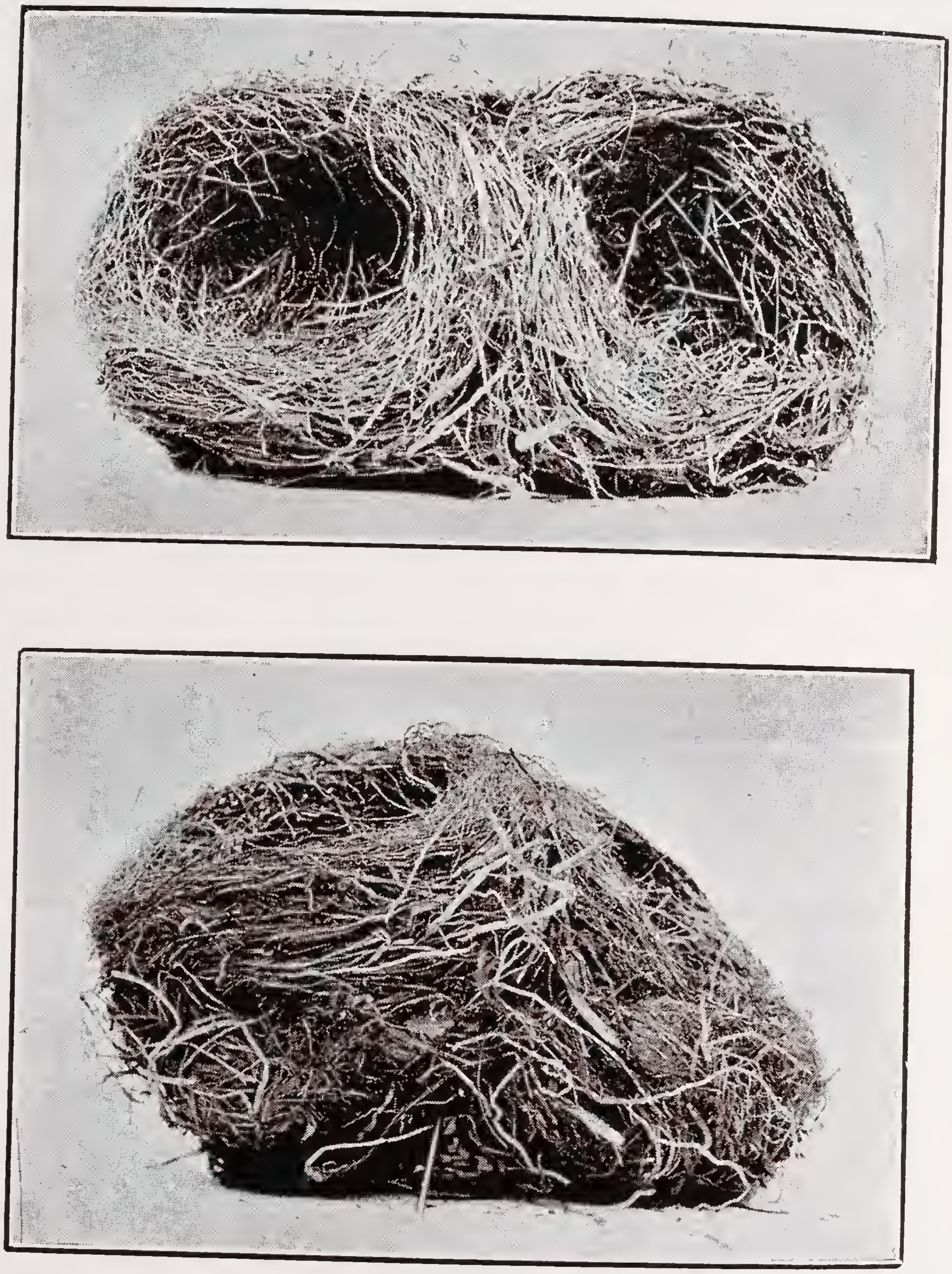
This, vocalized as above, was sung at the speed of three to four quavers a second.

One day two young birds, just out of the nest, ran along the pathway before me with perfect nonchalance. After a short time one ran under a hedge, the other alit and sat on a low branch. The parent bird suddenly appeared, and sitting near by at once opened a vigorous alarm (2).

Her bill was open as she uttered the vehement notes, four quavers a second. After the alarm she flew off and settled on the ground a few feet away watching, but the young ones paid no attention whatever to her warning; they had evidently not yet learned their lesson. Other cries have been noted, but less

---

*I was told in March, 1926, by an immigrant of a year or two's residence here that she had noticed this of the songs of the thrush and blackbird:—in England they were quite distinct, but in New Zealand they seemed much the same.



[*J. McDonald, photo*

Thrush's double nest (unfinished), from Papakura School, near Auckland. Top view and side view.

attention has been paid to the recording of the song of the acclimatized birds;—there is no fear of *their* extinction

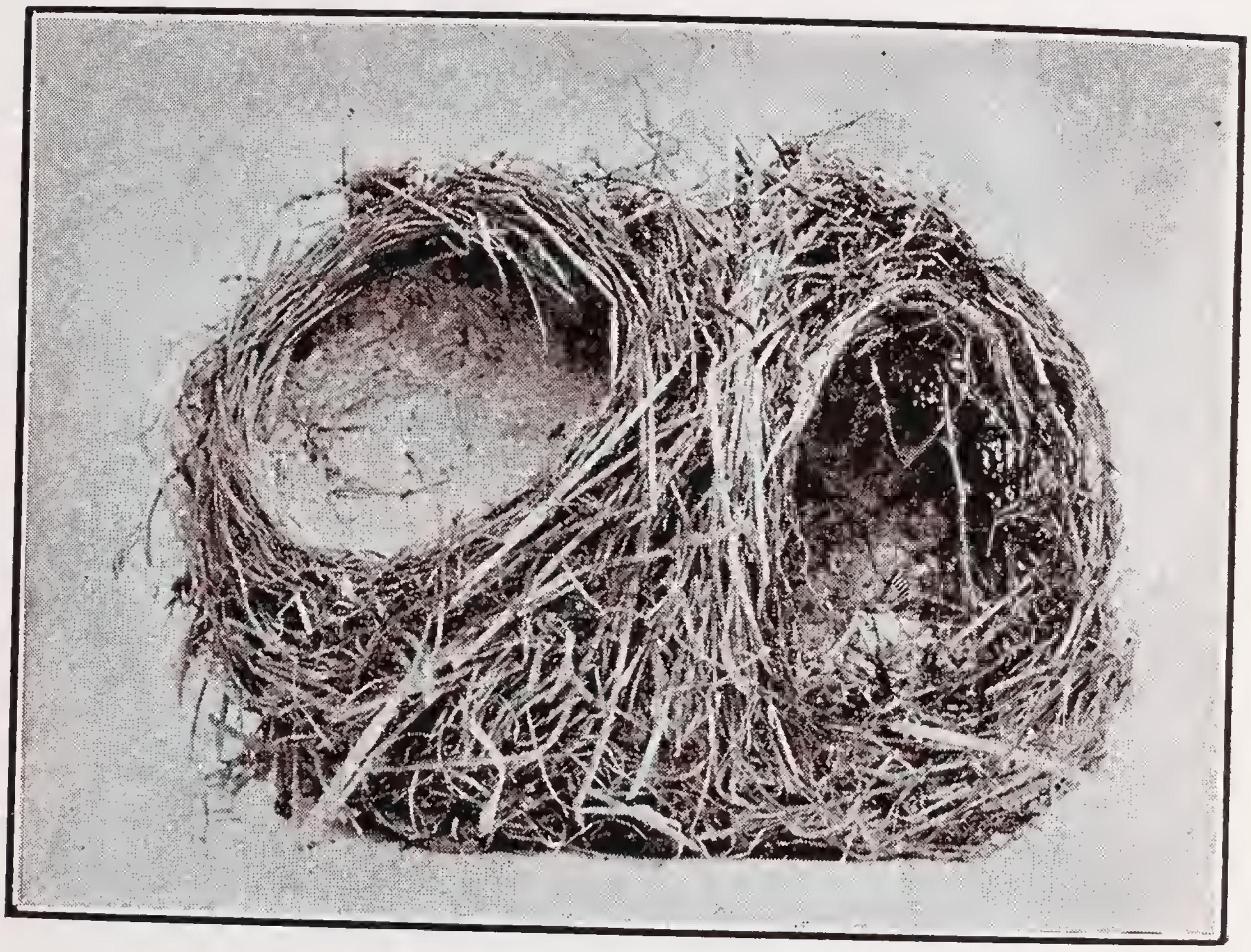
It has been impossible, however, to avoid noting an apparent change in the habits of thrush and blackbird. During the 1921 season four thrushes' double nests were found, following the finding of the fantail's double nest already referred to. All were found by school-children, who sent to me two of the nests and the measurements of the third.

One nest, found in a macrocarpa pine, at Papakura, Auckland, is composed of roots and dry grass: the foundation is coarse roots and grass with a mixture of clay and cow-droppings, the roots becoming finer as the walls rise, the cup being lined with the finest. The nest is not finished, the clay lining not having been put in. The measurements are:—Inside of cup, 3½ in. across, 2½ in. deep; whole nest, outside, cup 5 in. across, 10 in. across the two nests, height at angle where both join, 7½ in. Angle made by slope of the two cups 112°.

The second nest, from Te Mapara, Auckland, is composed almost entirely of dry grass and bents; there are a few twigs, and a very little moss. The cups are lined with dark clay and droppings, smoothly covered with shredded decayed wood, pale yellow or straw-colour, in appearance like dried Westland moss; one cup is darker in colour because less covered with the yellow wood. This is a beautifully finished nest. The measurements are:—Inside of cup, 3½ in. across, 2½ in. deep; whole nest, outside, cup 6½ in. across, 10 in. across the two nests, height 6 in.; angle made by slope of the two cups, 110°.

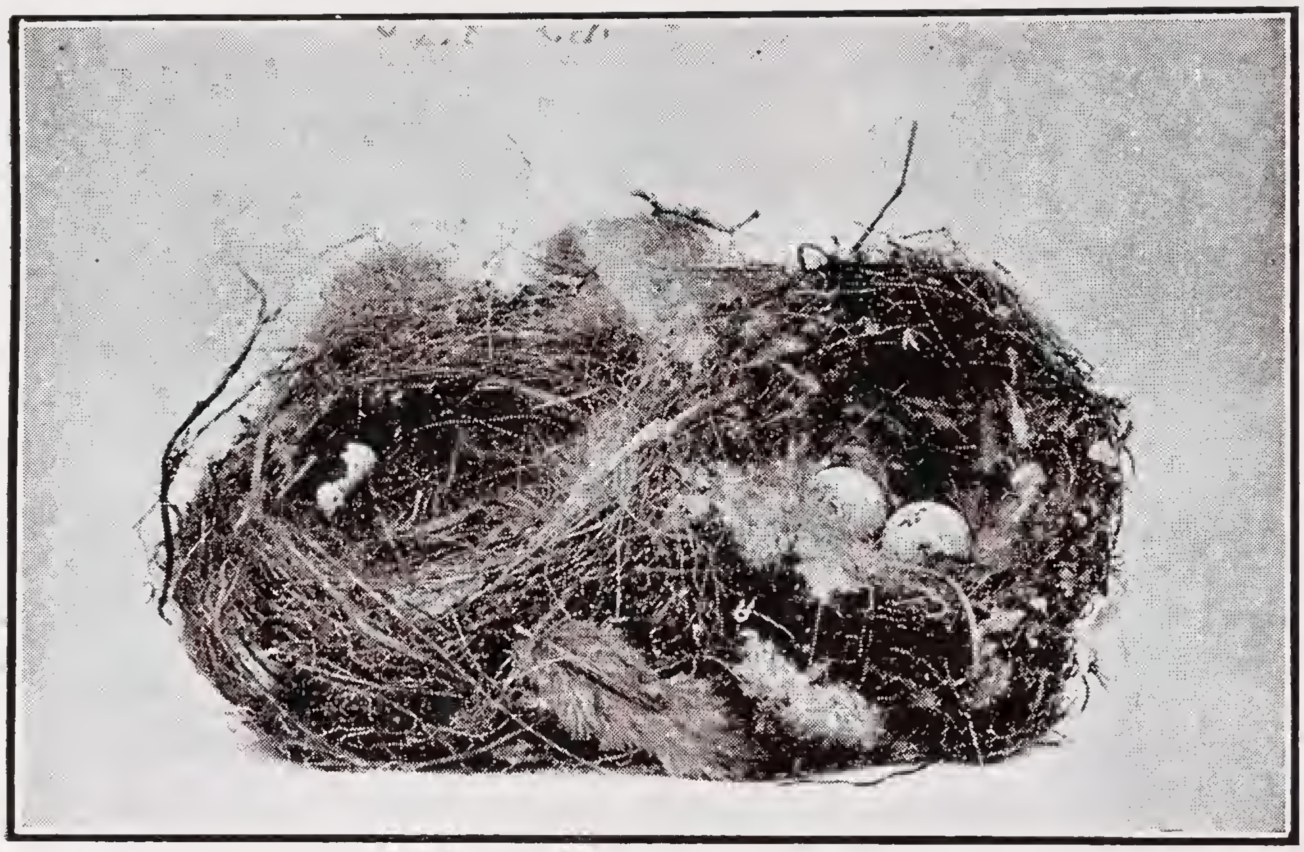
The third nest, from Mangamahoe, near Wellington, has not been seen by me. The measurements given are:—Inside of cup, 3½ in. across, 2¾ in. deep; whole nest, outside, cup 5 in. across, 8½ in. across the two nests, height 4½ in.; angle made by slope of the two cups, 115°.

A fourth nest was reported from near Mangamahoe. The nest was built in a wineberry (makomako), and there were eggs in both cups,—four in one and two in the other. On the nest being approached a bird flew off one part, whilst the eggs in



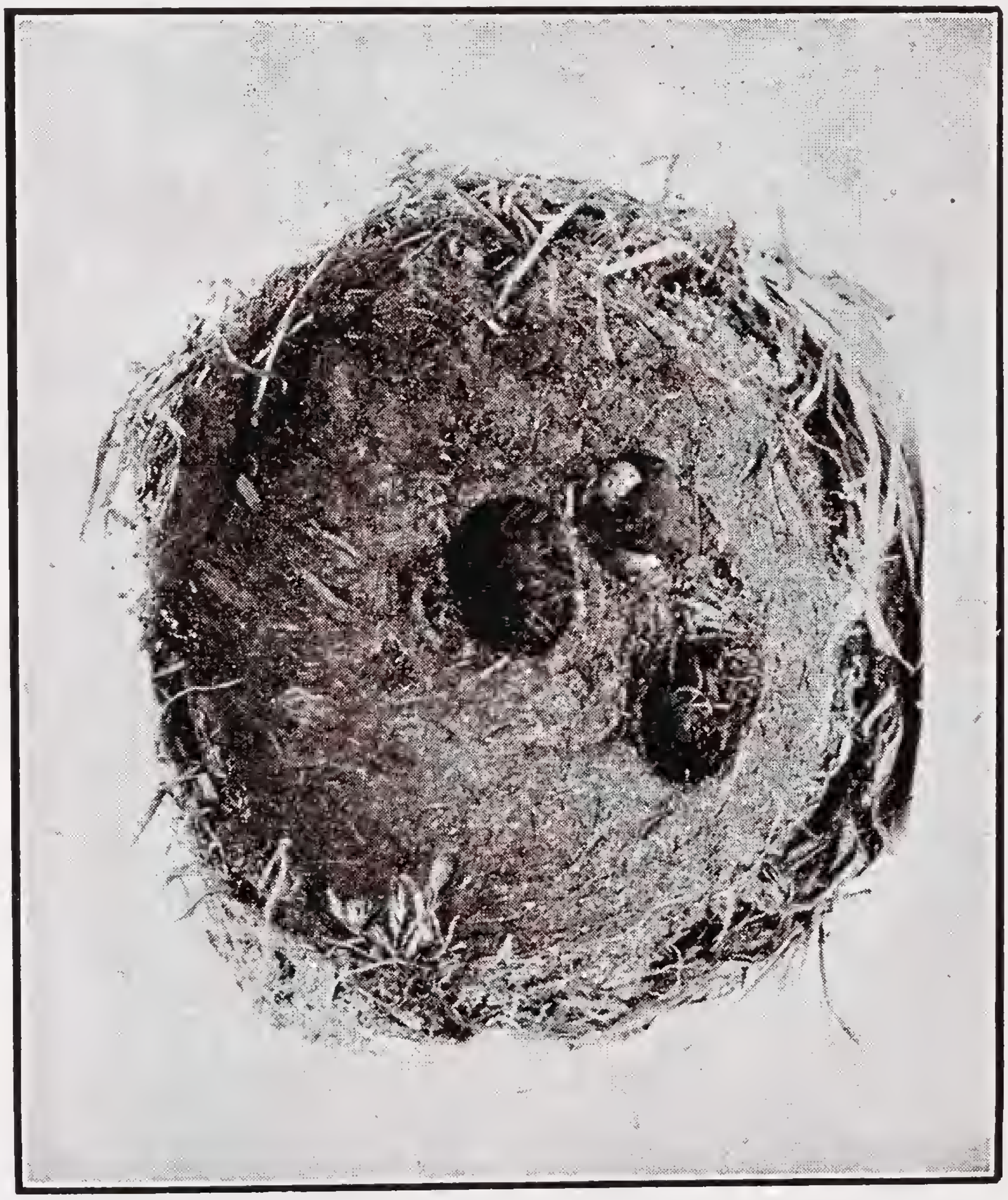
[J. McDonald, photo

Thrush's double nest, from Te Mapara School, Auckland.



[J. McDonald, photo

Linnet's double nest, from Papakura School, near Auckland.



[J. McDonald, photo

Thrush's nest with double lining, from Wairoa South School, Auckland.

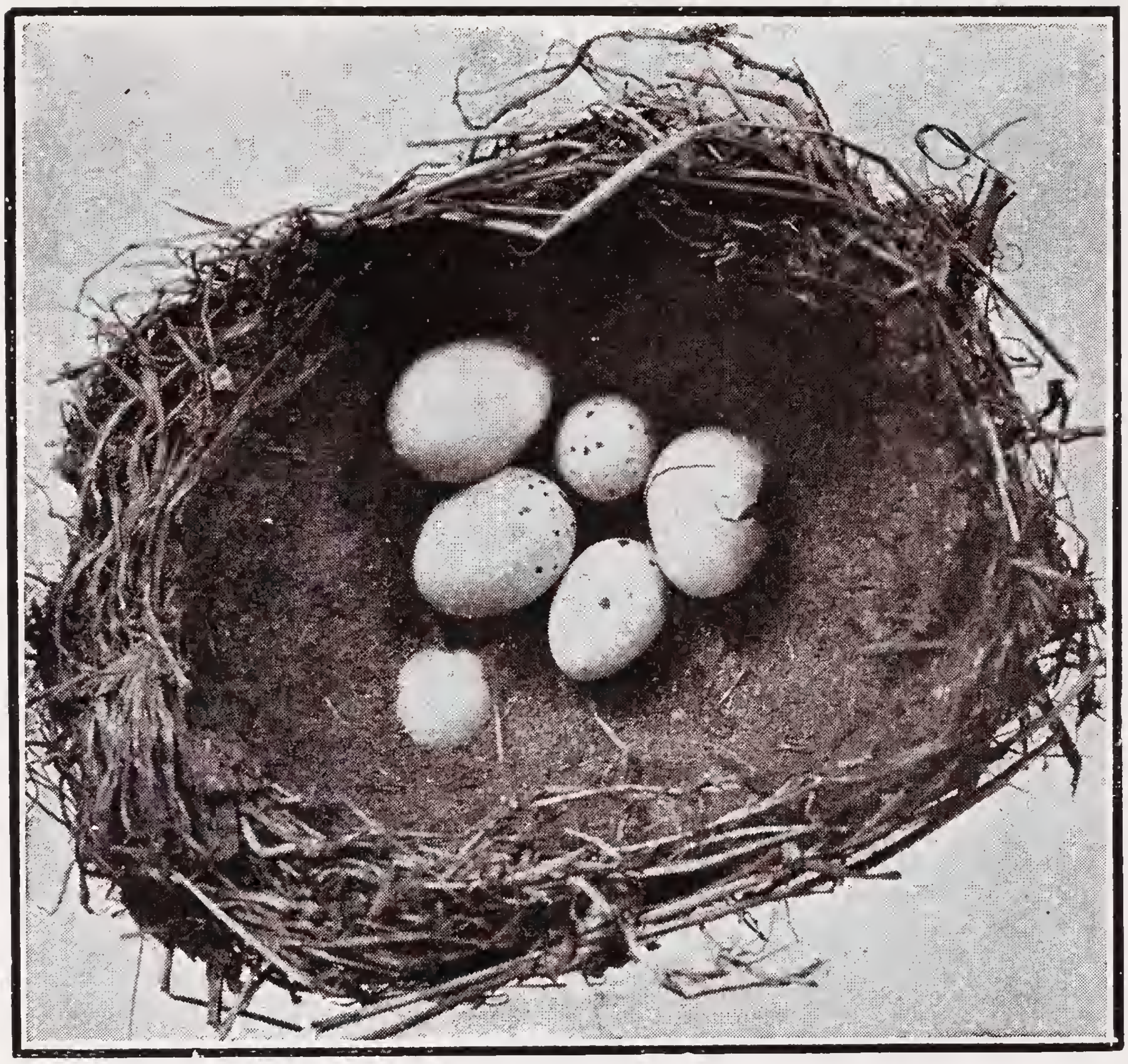
the other were warm, so that two birds must have been sitting at the same time.

A linnet's double nest, with eggs in both cups, was also found in a macrocarpa pine at Papakura, Auckland. It is composed of fine roots, bents, and blades of grass; black and white horsehairs; down, feathers; and thistledown in large quantities, the seed still on much of it, as if a whole head had been plundered. Brown, grey, and green lichens and mosses are woven in round the rim. The cup is lined with horsehair, thistledown, and small feathers. The measurements are:—Inside of cup, $2\frac{1}{8}$ in. across, 2 in. deep; whole nest, outside, cup 4 in. across, $6\frac{1}{2}$ in. across the two nests; height $3\frac{1}{4}$ in.; angle made by slope of the two cups, 138°.

Yet another curious thrush's nest was found in the 1921 season at Wairoa South, near Auckland. The cup is lined with clay and droppings, but has no wood in it, so is dark-coloured like a coconut-shell. The building of this nest was observed. Three eggs were laid, and these for some reason became cold. The bird then put a second lining into the cup, partially, but not quite, covering the three eggs, and four eggs were laid in the new cup. Possibly the female that laid the three eggs was killed, and on the male taking another mate the second lining was put in and the second lot of eggs laid. The nest had all the eggs in both parts when taken, but unfortunately they were later destroyed by rats, so only the holes occupied by the eggs can be seen in the illustration. Several nests of this kind have since been found, also nests built one on top of the other, as many as five nests being thus cupped into the first one built, one above another. One nest with double lining shews an extraordinary clutch of eggs, varying very much in size, in shade of ground-colour, and in speckling,—two being quite without marks of any kind. An embedded egg of the first nest is also seen.

A blackbird's double nest has been reported from Kotuku, Westland, but it has not been seen by me.

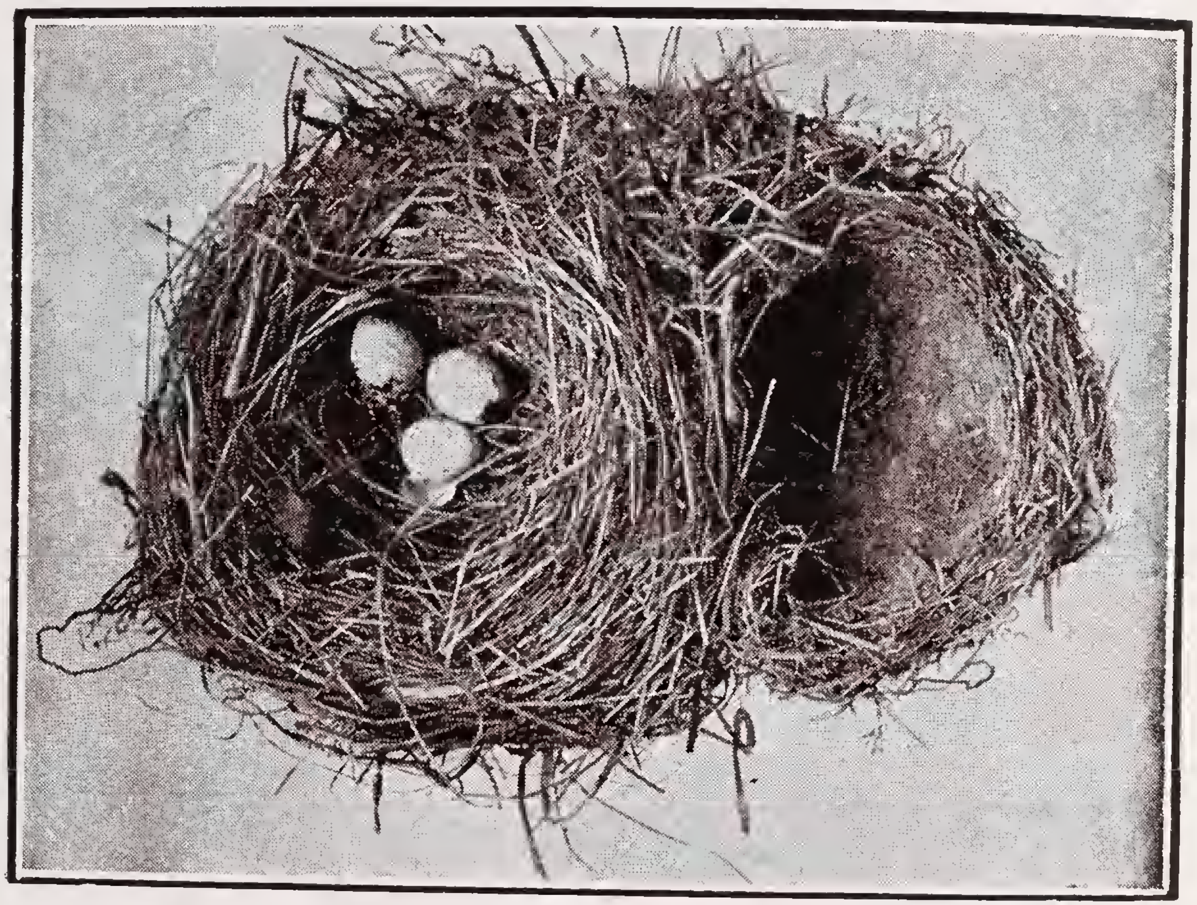
The habits of thrushes and blackbirds seem to be changing here in New Zealand; at any rate, eccentricities have been



[*J. McDonald, photo*

Thrush's nest with double lining and clutch of unusually varied eggs (five). The sixth egg (the lowest), laid in the first nest, is almost covered by the second lining.

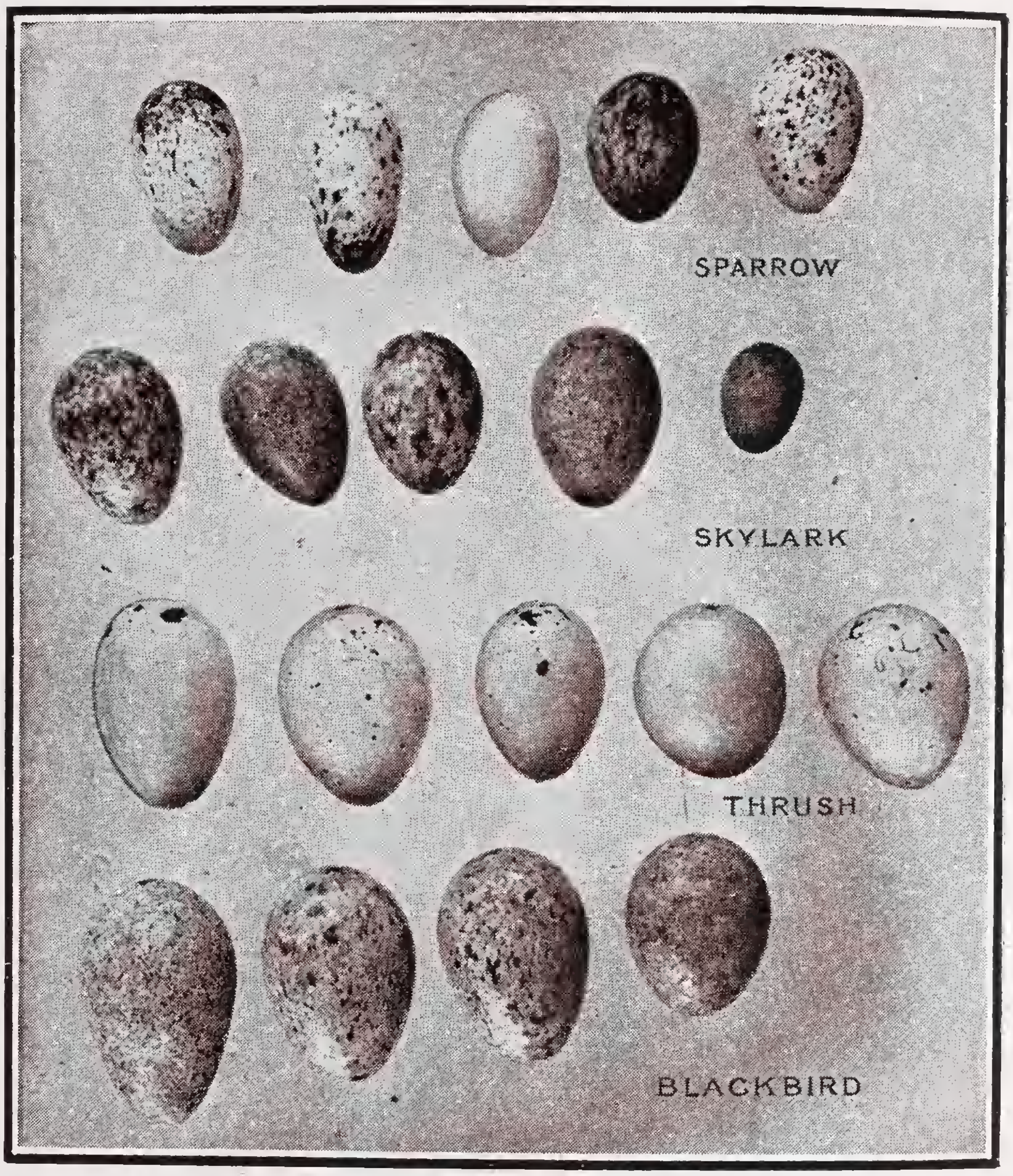
D



[*J. McDonald, photo*

Blackbird's nest and thrush's nest, built side by side observed during the last five years (from 1920), that have not before been recorded. For instance, during the 1921 season four thrushes' double-nests were found, following the finding of the fantails' double-nest. I am in touch with over 60,000 children by means of the *School Journal,* and am kept well posted by them in things that happen round about them.

Thrushes' nests have been found containing seven eggs, one containing eleven; these are probably instances of male birds with two or more mates, and it is suggested that the double-nests are instances of a similar kind; but this is not yet known. Moreover, nests of the thrush have been found containing two thrushes' and two blackbirds' eggs, and one containing four thrushes' and four blackbirds' eggs. Blackbirds' nests have likewise been found with two blackbirds' and two thrushes' eggs. In one instance a thrush and a blackbird had nested about six feet apart in a hedge at Lower Hutt, and both nests contained two thrushes' and two blackbirds' eggs. It is difficult to learn how this comes about, but the most conclusive evidence has come from elderly unimaginative people. One man saw a thrush sitting on the nest, and a blackbird settled beside her and waited to relieve her,—the blackbird taking the thrush's place on the nest on her leaving it. Another elderly man, who lives in a whare at the edge of Maori bush and in the midst of English shrubbery, asked me one day if I thought it possible that the thrushes and blackbirds were crossing; and on my telling him of the facts that were being learned concerning the nesting, he said he believed they were actually crossing; they seemed to be nesting together, and he had seen young birds which he considered were neither thrushes nor blackbirds; he was sure they were a cross. It may be; no doubt such young would be infertile. An illustration is given shewing a thrush's and blackbird's nest built side by side. Another shews variations in the size and marking of eggs of some introduced birds. The variations may be significant, or they may not. New Zealand offers more favourable conditions for the birds than Britain, but no doubt variation goes on in Britain quite as much as in New Zealand, though



[*H. Hamilton, photo*

Variations in size, shape, and colouring, of eggs of four introduced birds—sparrow, skylark, thrush, and blackbird.

the variation in nest-building has not, so far as I know, been recorded.

Another variation in eggs has been observed. It was noted through a child sending a hen's double-egg as a curiosity. Hens' and ducks' double eggs came in from all over the islands; —double, that is, in having one shelled egg inside the other. One (a hen's) was ten inches in circumference one way, eight inches the other, and both eggs were perfect, with shell, white, and yolk. Some of these eggs were imperfect in that one egg might be soft-shelled, or contain white only, or yolk only; some were double in that two perfect soft-shelled eggs were joined together with a pipe. A hen's triple egg was recorded, the outer egg being twice the ordinary size, and containing both white and yolk: the second egg was hard-shelled, like the outer, and contained white, but no yolk; the third or inner egg, which was about the size of a blackbird's egg, was soft-shelled, and contained white, but no yolk, like the second. One duck's quadruple egg was found. It was nearly twice the size of an ordinary egg, having a beautifully tinted shell, very translucent. The outside egg and the second and third contained white only; but the fourth and innermost egg, about the size of a small cherry, contained white and yolk,—the only perfect egg of the four. Of small birds, a starling's double-egg was sent to me, both eggs hard-shelled. A blackbird's was found, the outer egg containing white and yolk, the inner two yolks but no white.

Now the question arose, would any of these eggs, if perfect, hatch out? There seemed to be no way of discovering this, as an egg could only be known for certain to be double by breaking it. One man told me that as a boy he used to collect eggs and breed canaries, and that on one occasion a hen sat on four eggs and brought out five young ones—but he thought someone had played a joke on him. One day, however, another canary-breeder brought an egg, which had evidently been a double-yolked egg, and it contained two dead chicks. He said it had been so long hatching that he broke it to see what was wrong, and found the dead chicks. Evidently double-yolked eggs will hatch,—and accident (how much is discovered by accident!) showed that double-shelled eggs will hatch too. Two boys found a fantail's nest, and removed the eggs, which all appeared the same, intending to take them home. One was accidentally broken,—and it contained a partly-developed chick and another egg. The inner egg was small, but the shell was as thick as the outer shell. They tried to blow it, but it broke, and inside they found another partly-developed chick. As the Maori would say, "Accident is a personage of great importance."

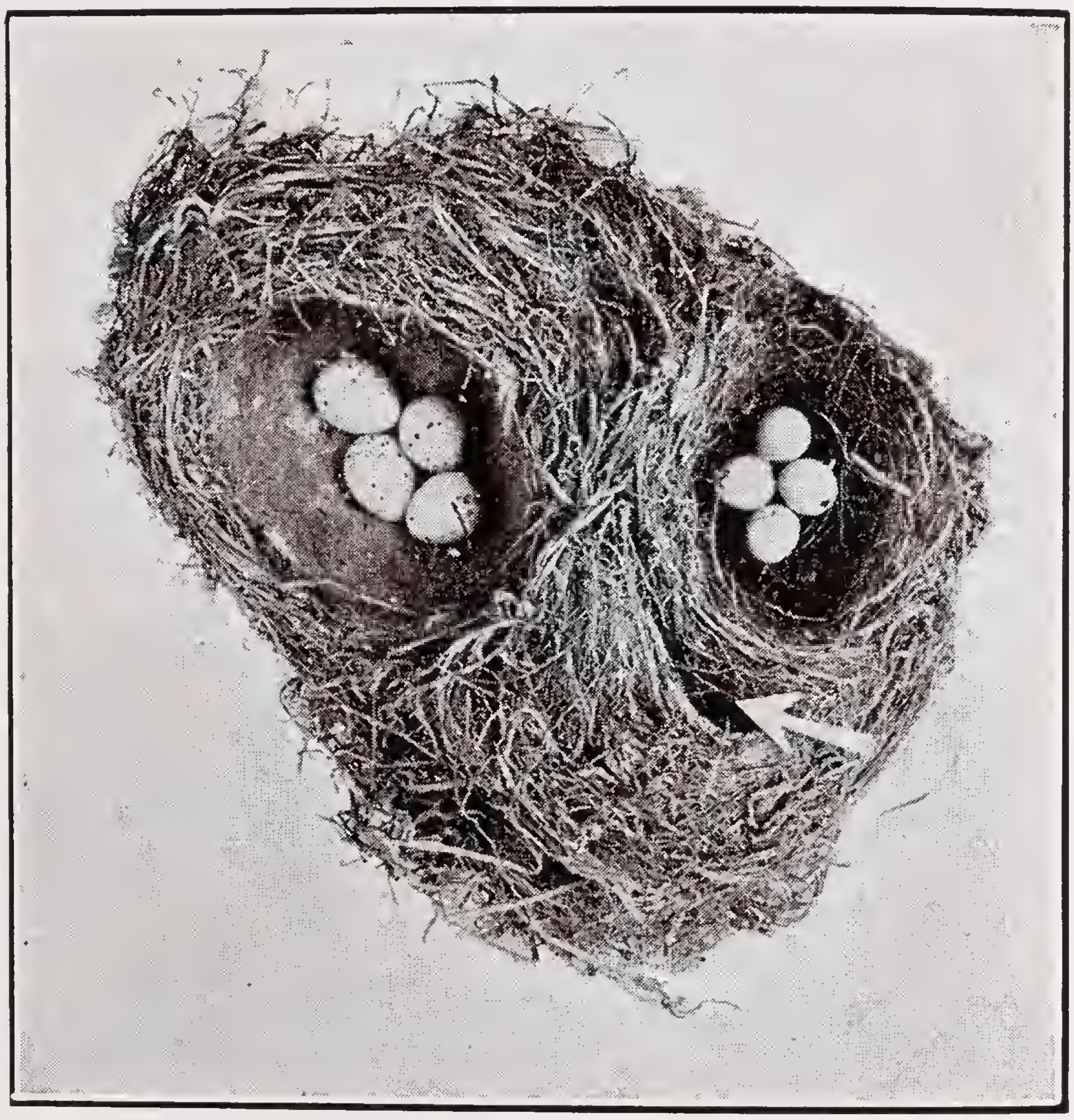
Yet another instance, this time to show the apparent sociability of birds. In 1923 a boy brought me a thrush's double-nest from Lower Hutt, Wellington. It was no ordinary double-nest. After building it the thrushes discovered they did not want one of the nests; it may be that one of the females, supposing there had been two, had been killed, so there was no need for the nest. It was well built, however, and rather than let it remain empty it was sub-let to a hedge-sparrow, which lined the completed thrush's nest and laid its eggs. Both birds laid, so both birds must have sat amicably side by side. The arrow, in the illustration, shows a division between the hedge-sparrow's nest and the thrush's.

The two New Zealand species of thrush are:—

Turnagra tanagra	North Island thrush	piopio
Turnagra crassirostris	South Island thrush	piopio

The North Island thrush.—Above, olive-brown; throat white, breast olivaceous-grey, abdomen yellowish-white; tail rufous; eye yellow; bill and feet dark brown. Total length 11 in.; wing, from flexure, 5½ in.; tail, 5 in. The sexes are alike. The young birds are marked with rufous on the head, and have a band of the same colour on the breast.

The South Island thrush.—Above, olive-brown, below olivaceous, streaked with white, tinged with yellow on the abdomen; tail and some of the wing-covets rufous; eye yellow; bill and feet dark brown. Total length 11 in.; wing, from flexure, 5 in.; tail 5 in. The sexes are alike. The young are rufous on head and throat.



[*H. Hamilton, photo*

Thrush's double nest, from Eastern Hutt School, Wellington.
Hedge-sparrow's nest built in cup on right.

Eggs.—Probably four in number, but two usually found; ovoid or elongated in form, pure white, spotted with blackish-brown or black, purplish at the edges of the spots; sometimes of a delicate pinkish tinge, just staining the white, spotted with brownish-grey, with purplish blotches at the larger end; length a little over 1¼ in.; breadth almost 1 in.

Habits, including Nest.—I have heard no note of a Maori thrush, nor have I ever seen the living bird. At one time it was plentiful; and the observations of such men as Potts, who has written in a most attractive manner of his experiences of the wild life of old New Zealand, are now invaluable as giving an idea of the appearance of the country, and its bird habitants, during the early days of settlement. "In writing the natural history of our birds," says he (PO, p. 198 *et seq.*), "the bewailment of their lessened numbers has come to be a matter of course, [and] the rapid settlement of the country has, in the case of the thrush, limited its range greatly, few birds having retreated with so much haste before the efforts of the cultivator.

"Let us take a section of this [the South] island, say one hundred miles in width, including Banks Peninsula, and stretching from the eastern to the western shore, this will afford some information as to its present habitat. Within this range at one time, the pio-pio [Maori thrush] might be found in any bushy place, not too far from water, where belts of shrubs afforded shelter and abundance of seeds; ten years at least have passed since we heard of its occurrence in this neighbourhood (Governor's Bay); on Banks Peninsula proper it is now scarce; in the bush-dotted gullies of the Malvern Hills, the Thirteen-mile Bush, Alford Forest, and many other localities, it was not very uncommon; now, let an enthusiastic naturalist traverse these places in search of our feathered philosopher, he will find it has become a *rara avis* indeed. We must pass through these portals of the mountains, the river gorges, to catch sight of the thrush hopping about the openings of the bush, much after the fashion of its English namesake;

but even here its numbers have become woefully diminished. Four or five years ago, on either side of the Upper Rakaia, where the bushes descend the mountain slopes, these birds fairly teemed in their favourite haunts, but they are already becoming rare. They may be seen about the bushes that skirt the cold streams of the Havelock, the Upper Waimakariri, and Bealey; through the romantic gorge of the Otira to the more level ground that stretches away to the Teremakau it may be frequently seen, always appearing to prefer the timbered forests, the mixed scrub, made up of moderate sized bushes of *Coriaria, Olearia, Veronica,* and *Coprosma.* As we reach the western coast, about the Arahura river it was, some years since, most abundant. In December, 1871, we searched one of their former favourite haunts, a large island in that river more or less covered with scrub-bush, dotted with ti-trees, and two or three specimens only were to be seen; they have been driven away from Arahura by the clearance for paddocks to supply the requirements of the West Coast cattle trade. In December, 1871, in travelling along the coast from Ross to Okarita, we saw this bird in abundance on the face of those bluffs which form such picturesque breaks in that journey; up the river flats it was equally numerous.

''Settlers have given the name of the thrush to the pio-pio, from its size and brown plumage recalling to mind their favourite of the old country; it possesses not in the slightest degree that charm of song which distinguishes the throstle, yet it enjoys the power of giving utterance to several pleasing notes. It does not stir so early as many other birds; its morning salute is a long-drawn rather plaintive note; this peculiar whistle it indulges in at times only, for its habit when close to the water, frequently is to pipe thrice, in a way that at once recalls the redbill (*Haematopus*); the imitation is so like, that the writer and his son (well acquainted with bird-notes and calls) were frequently deceived, and have looked for a red-bill till the pio-pio disclosed himself by fluttering from bush to bush. Its common song seems to be near akin to that of the pipit (*Anthus novae-zealandiae*); it sounds two preludatory notes, then strikes off into a very brief song;

when joyously flying in pursuit of the female it utters a quick *chi-chi-chit, chi-chi-chit*; it marks its displeasure, or tries to intimidate intruders that approach its nest, with a low purring *chur-r-r*; both cock and hen join in this cry of anger. When singing, the effort is marked by the tail being spread, the wings held not quite close; the feathers of the breast and back are not raised as in the case of the bell-bird.

"We have called the pio-pio a philosopher; he has quite as good a claim as many a biped to whom that title is accorded; who doubts this, let him make acquaintance with the pio-pio, not merely a slight acquaintance, but such a one as ripens into intimacy. The result will be to know a bird who takes the world as it is, indifferent as to food; that feeds on insects when procurable, or can make shift on grasses, seeds, or fruits; that neither courts nor avoids observation; is as bold as the robin or tit, without their intrusive friendlessness; that, when in the presence of strangers, coolly pursues its occupation without the prying inquisitiveness of the brown-creeper, or the watchful distrust of the popokatea, that defends his home with almost the courage of the falcon or tern.

"It seems to delight in those openings which are found in river-beds, between long belts of tutu and other scrub; there it may be observed either hopping along the ground or fluttering about the lower sprays of shrubs, flying out to the spits of sand, or drifted trees, that lie stranded in the river-bed. On some of the longer formed spits that are becoming clothed with vegetation, it searches among the berry acaena, snips off the fruit stalks of moss, picking the seed of some trailing *Veronica*. Its progress on the ground is usually deliberate, it hops with both feet together, a slight flutter of the wings, and a flirt of the tail accompanying each motion; when approached too closely, it leaves its perch, always descending at first, as though safer when near or on the ground; if it would rise on the wing, a momentum is gained by a succession of hops. In some of its habits one is reminded much of the wattle-bird [crow]; its usual associates, at any rate during the summer months, are tuis, parroquets, and robins.

"Not much secretiveness is displayed in the choice of a site for its nest; it may be found at varying distances from the earth, from four feet to twelve and upwards, usually at seven or eight. The structure is firmly and compactly built, with small sprays for the foundation, on which moss is abundantly interwoven with pliant twigs; the lining is usually of fine grass bents; some nests are finished off with soft tree-fern down; it is usually placed in tutu (*Coriaria ruscifolia*), sometimes in *Coprosma,* or manuka. From the neighbourhood of its home, rivals of its own species as well as other birds are driven off.

"Probably it breeds twice in the season, although we have not observed more than two eggs to a nest; yet we have found four eggs tolerably forward in the ovary of a female killed at Christmas time. The full complement of eggs is probably four.

"Near Lake Mapourika, in a very swampy situation, we found a nest with the walls very thickly built of moss and manuka sprays interwoven. It was placed about 15 feet above the ground in a tall manuka. Dimensions of the nest across the top from outside to outside of wall about 7 in., diameter of cavity about 3 in., with a depth of 2 in. We find this a fair average, after looking at scores of nests. The young when they emerge from the shell have a covering of dark down. We think the eye of the pio-pio gleams with much intelligence; perhaps this notion is conveyed by its narrow, but bright pale yellow iris.........Once up the Havelock, in one of the outskirts of a mixed bush of *Phyllocladus, Fagus,* and *Podocarpus,* several thrushes were observed flying from the top of a tree after insects, flycatcher fashion, in the glow of a hot afternoon........"

It may be with the thrush as with the robin;—the South Island species of both was songless, whilst the North Island species was a fine songster; for, differing remarkably from Potts, Buller (BN, Vol. 1, p. 27) speaks of it as "unquestionably the best of our native songsters. His song consists of five distinct bars, each of which is repeated six or seven times in succession; but he often stops abruptly in his overture to introduce a variety of other notes, one of which is a peculiar rattling sound, accompanied by a spreading of the tail, and apparently expressive of ecstasy. Some of the notes are scarcely distinguishable from those of the yellow-head; and I am inclined to think that the bird is endowed with mocking-powers. The ordinary note, however, of the pio-pio, whence it derives its name, is a short, sharp, whistling cry, quickly repeated.'' Writing of a captive thrush, he said, ''........He often astonished me with the power and variety of his notes. Commencing sometimes with the loud strains of the thrush, he would suddenly change his song to a low flute-note of exquisite sweetness; and then abruptly stopping, would give vent to a loud rasping cry, as if mimicking a pair of Australian magpies confined in the same aviary. During the early morning he emitted at intervals a short flute-note, and when alarmed or startled uttered a sharp repeated whistle.''

When Buller says he is inclined to ascribe mocking powers to the bird because some of its notes resemble those of the yellow-head, he apparently forgets that the yellow-head is confined to the South Island, and the thrush whose song he is describing to the North, so that imitation is out of the question. There is, too, a good deal of sameness in his description of the quality of the song of the various birds, so that one is inclined to doubt the discrimination of his ear;—in fact, when I have become acquainted with birds whose song he describes, I have come to the conclusion that he either did not know their song at all, or took his description from hearsay.

Of the four Maori names recorded (WJ, p. 198), the one commonly in use is the echoic name pio-pio. The name occurs in a Maori proverb,—*Pio-pio wirunga nga tau ko Matatua te waka*, (The pio-pio came on the bow of the Matatua)—one of the original canoes from the mysterious Hawaiki (TI, p. 403).

Whilst this book was in the press I have seen a long article "Der Amselgesang und seine Beziehung zu unsrer Musik," by Cornel Schmitt and Hans Stadler, in 49 Bericht der Senckenbergischen Naturforschenden Gesellschaft in Frankfurt am Main, Heft 1, 2nd August, 1919. These writers were evidently studying the song of the blackbird whilst I was studying the songs of our New Zealand birds, and they pay tribute to his artistry. They give scores of themes in our musical notation, and credit the bird with artistry and invention of a high order. I must say, too, that after a lecture in New Plymouth in March, 1926, I was told by an English immigrant of about two years' standing that she had noticed what I said of the indefiniteness of the songs of the thrush and blackbird here in New Zealand, but that in England there was a definiteness of theme that is lacking here. There is perhaps a modification, a change, taking place in the song as in the habits of these birds.

Family: Sylviidae

THE WARBLERS

It is from this numerous family that Britain wins her company of sweetest songsters. Of the twenty-one singing members of the family, however, four only are permanent residents in the British Isles, the remaining seventeen being summer visitors. Of the four residents, the golden-crested wren is partly migratory, huge flocks crossing the North Sea in common with other migrants, but numbers of the birds nevertheless may be found in the islands throughout the year.

The foremost songster of the warblers, and of all the singers, is of course the nightingale; a bird whose song has been the theme of the writers of all ages; a song inimitable for variety, for quality of note, and for sustained sweetness as well as power of voice. No British bird possessing the migratory instinct has yet been induced to accept New Zealand as a permanent home, though the native birds of Britain have in most instances taken kindly to these more genial southern isles; and unless the natural difficulty, whatever it may be, can be overcome, the exquisite songs of the nightingale, the blackcap, and indeed most of the true songsters of Britain, are denied to New Zealand. The nightingale, reed-warbler, wren (Tr., Vol 30, 1800, p. 273), and white-throat (YH, Ed. 4, vol. 1, p. 408), have all at one time or another been brought here and liberated, but there is some essential condition lacking, and none has become established. The only bird of the family to accept New Zealand as a home is the hedge-sparrow, whose quiet song may be heard in many parts of the islands. Whilst numbers of the Sylviidae may be indifferent songsters, there still remain the nightingale, blackcap, garden-warbler, reed-warbler, sedge-warbler, greater white-throat, and robin, all fine songsters, and the grasshopper-warbler, Dartford-warbler, hedge-sparrow, lesser white-throat, all fair songsters;

and against the melodies of this choir the best New Zealand can offer is the plaintive song of the grey warbler, the Maori riroriro. It is the most sustained of all the songs of the Maori birds; and whilst it is neither powerful, nor rich and varied in quality of tone, it is one of the most generally artistic of all the songs, possessing strains that, if further developed, would rank the bird as a fine songster. The tom-tit, another member of the New Zealand family, has one little phrase of song on which it warbles variations. The North Island robin, another member of the family, is, like the thrush, almost a bird of the past, though there is hope of its preservation since it is found in numbers on the sanctuary of Kapiti. It is a fine singer, though apparently it never was voluble, its song being uttered with wild joyousness in early morning for perhaps five minutes at a time from some tree-top, when it would suddenly cease as the bird dived into the depths of the bush.

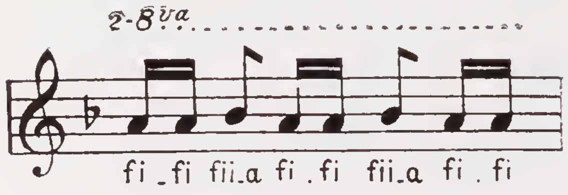
A few observations may be made on the song of the hedge-sparrow, now perfectly naturalized in New Zealand. This song is a quick, vocalized warble, mostly hovering about one note; at times intervals are attempted;—I have heard an interval as wide as two tones legato, and an octave slurred. The intervals are often less than semitones, and the vocalization is greatly varied. Whilst there is much indefiniteness in the song, and much of it appears to be sung in a haphazard way, there appear to be certain definite themes and phrases that are the result of an awakening art, and not of blind accident. The phrases (1) to (3) show the hovering about one note, and the varied vocalization.*

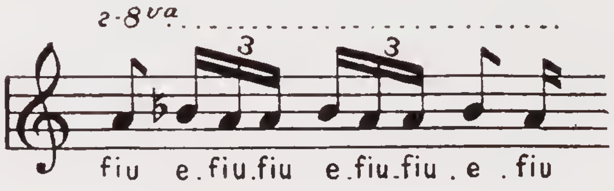
The vowel sound of *i* is short, as in *hit,* and the *e* is short as in *net*; the *u* is the sound of *oo* in *poor,* the *o* short as in *not*; the *ee* indicates the long sounds as in *sweet.* Phrase (2) took a little over a second, as did its variant, phrase (3) ; these were continued, with other variations, for minutes at a time, the repetitions being separated by intervals of from one to four seconds. These notes are very high in pitch, and are all warbled moderately loud, in a bright vivacious manner. There is a little more variation of pitch, and more light and shade in (4) ; and whilst there was little

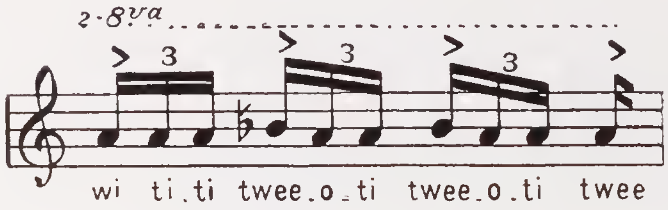
---

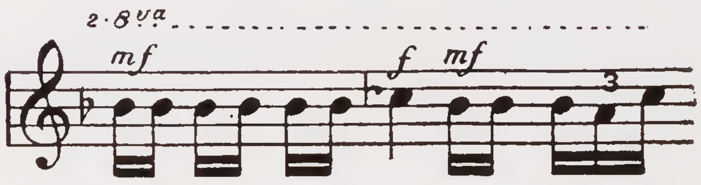
*As many of the birds use intervals less than semitones, the ordinary sharp and flat have been varied to represent these smaller intervals, as under :

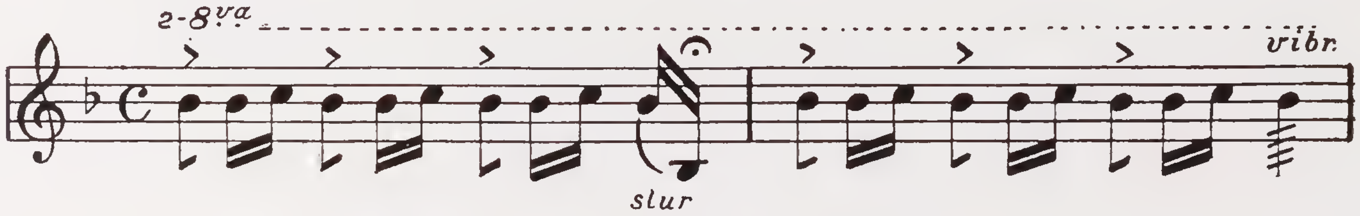
𝄲 quarter sharp ; ♯ half sharp ; 𝄰 three quarters sharp ;
𝄳 quarter flat ; ♭ half flat ; 𝄬 three quarters flat.

1


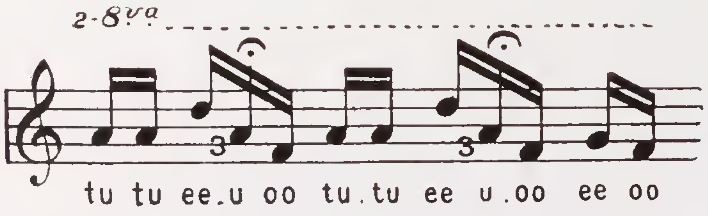
2


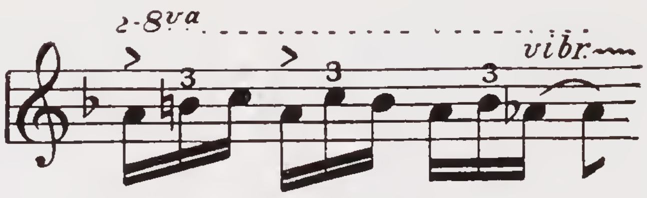
3


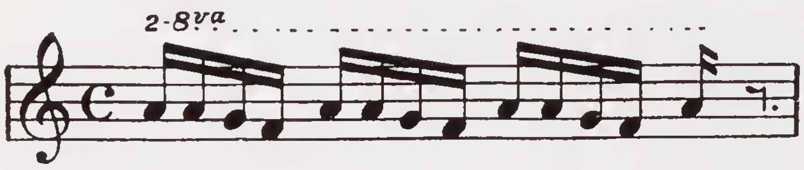
4


5


variation in the outline of (5), the strain contains a definite theme, and it is in perfect common time, warbled allegro, the octave slur and the vibrato note ending the alternate bars. There were unusually wide intervals in (6), and a curious elusiveness in the tempo, caused by a slight pause on the second note of the

6


7


8


triplets. The tempo again becomes definite in (7), a phrase which displays considerable art. The sequence of the notes was varied in the first two triplets, the first note of each triplet being accented; but the accent was unexpectedly suppressed on the seventh note, and this note and the eighth were slightly hurried, and a trace of the lost accent heard on the vibrato *a* flat. The phrase took a second and a half in utterance, and was repeated several times, always with the skipped accent and the vibrato final note. The earliest song heard in 1917 was the phrase (8), also in perfect time. It was a bright, cheerful song, sung at the rate of eight semiquavers in a second, and was heard on the 27th March, at the end of the second month of autumn. The day was the third day of coldish, fresh weather after a spell of dry heat; it was almost frosty, though sunny and bright. The song was unusually early, as the hedge-sparrow generally starts singing in Wellington about July, the last month of winter, singing on till the moult in the hot weeks of January.

I do not know if the hedge-sparrow sings by night as well as by day in Britain; but I have heard it sing short snatches on moonlit as well as on moonless nights in the shrub-bush about Wellington.

It seems almost regrettable that this bird should bear a name that confuses it with the pugnacious and ubiquitous house-sparrow, which it resembles in no particular except in plumage, and then in only a slight degree. The associations attached to a name, however, outweigh any inappropriateness it may possess, and would prevent change, even were change desirable.

The New Zealand birds of this family are:—

Pseudogerygone igata	the grey warbler	riroriro	
Petroeca toitoi	the white-breasted tit (N.I.)	miromiro or	ngirungiru
Petroeca macrocephala	the yellow-breasted tit (S.I.)	do.	do.
Miro albifrons	the South Island robin	pitoitoi or	
Miro australis	the North Island robin	toutouwai	tōtōwai

and minor varieties of the robin, also another warbler on Chatham Islands.

The grey warbler.—Above, greyish-olive; throat and breast grey, abdomen white, tinged with yellow. Tail, black, with a white spot near the tip of the lateral feathers. Eye, red. The sexes are alike, but in the young there is no yellow on the lower surface. Bill and feet, dark brown. Total length, 4½ in., of which the tail is 2 in.

Eggs.—Four to six; sometimes pure white, sometimes white or pink spotted or speckled with red at the larger end; length, $\frac{3}{4}$ in., breadth, $\frac{1}{2}$ in.

Nest.—The bird builds a pensile nest, measuring from 6 to 9 inches long, and about 3½ inches across at the widest part. It may be pear-shaped, or torpedo-shaped, and is suspended by the tapering point, the sides sometimes stayed in one or two places to adjoining branches or twigs. It is composed of dry moss, grass, vegetable fibres, the exterior being thickly coated with spider-web. The entrance is at the side, and is barely an inch across; and it is somewhat protected from the weather by an arched portico, almost three-quarters of an inch wide, woven into the structure; the portico sometimes has a ledge at the base, almost an inch in width, forming a threshold at the entrance. The portico and threshold may be quite absent, or the portico may extend downwards so that the side entrance is quite covered, and the bird enters from below. There is very great variation in this and in the general shape of the nest. The interior cavity is comparatively roomy, being about 2 in. deep, and is thickly lined with feathers. The pear-shaped nest is fuller in the middle, and the porch may be sometimes very slight, a merest overhanging arch, and no threshold.

Not until the season of 1924 was I so fortunate as to see the starting of a nest. Its construction had always been a puzzle, seeing that it must be built downwards. The birds first suspend a few fibres across the selected twig, weaving them into a strong hanging support, and weaving in the material as they cling to the lengthening structure. As it begins to swell out to the body the birds work underneath as well as at the sides, and seem to work as easily upside down as any other way. They do not appear to resent observation, the pair coming without hesitation to the nest as I stood by it. On one occasion, when it was so far completed that only the lining remained to be done, both birds approached, the male carrying a feather, the female following with ruffled feathers and shivering wings. They approached leisurely, settling, twittering, hopping a little distance, flying a few inches, evidently in a state of exuberance. The nest observed was built in about five days.

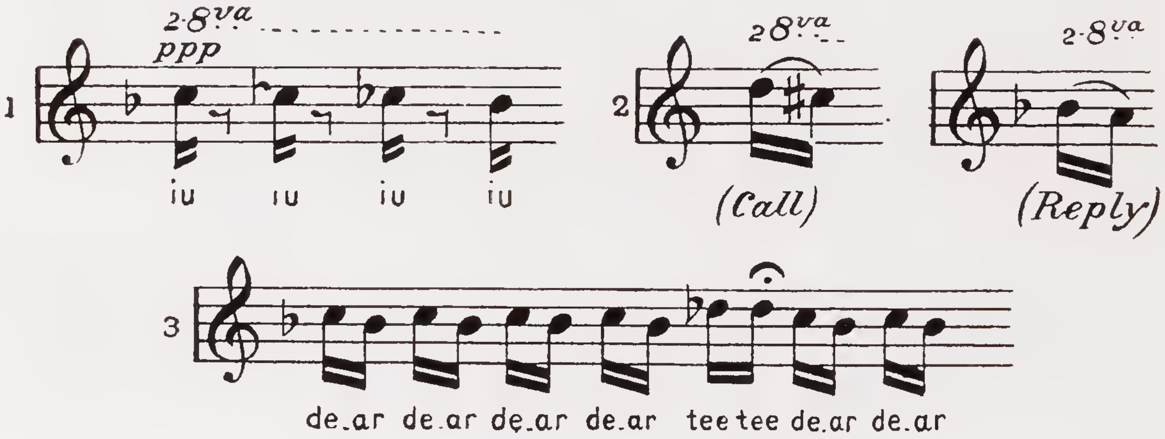
The warbler breeds twice in the season, a new nest being built in September for the second brood; it is in this second nest that the cuckoo places her egg,—of which more will be said in connection with the cuckoo.

Potts described a third species of warbler in *The Ibis*, 1872 (p. 225). He spoke of its habitat being unusual,—in the thick bush of Westland, and of its note being new to him. He suggested it might be the same bird that Reischek wrote him as having met with at Dusky Sound on 2nd July, 1884. He did not see this bird, but its note was new to him, the call consisting of three notes, like *di-di-di,* repeated several times. It is quite possible that these notes were those given in (8) below. They are quite different in quality from the ordinary warbler notes, being whistles rather than trills; they are often sung in threes, and will be described later. I have met the ordinary warbler both in thick and open bush, and am inclined to suppose, on the evidence of the song, that there may be two species. The one I have heard in the bush only, the other in the open, in the shrubberies of homes, and in the scattered clumps of Maori bush still left in rough gullies near cities. The former may be the one Buller calls the bush-warbler.

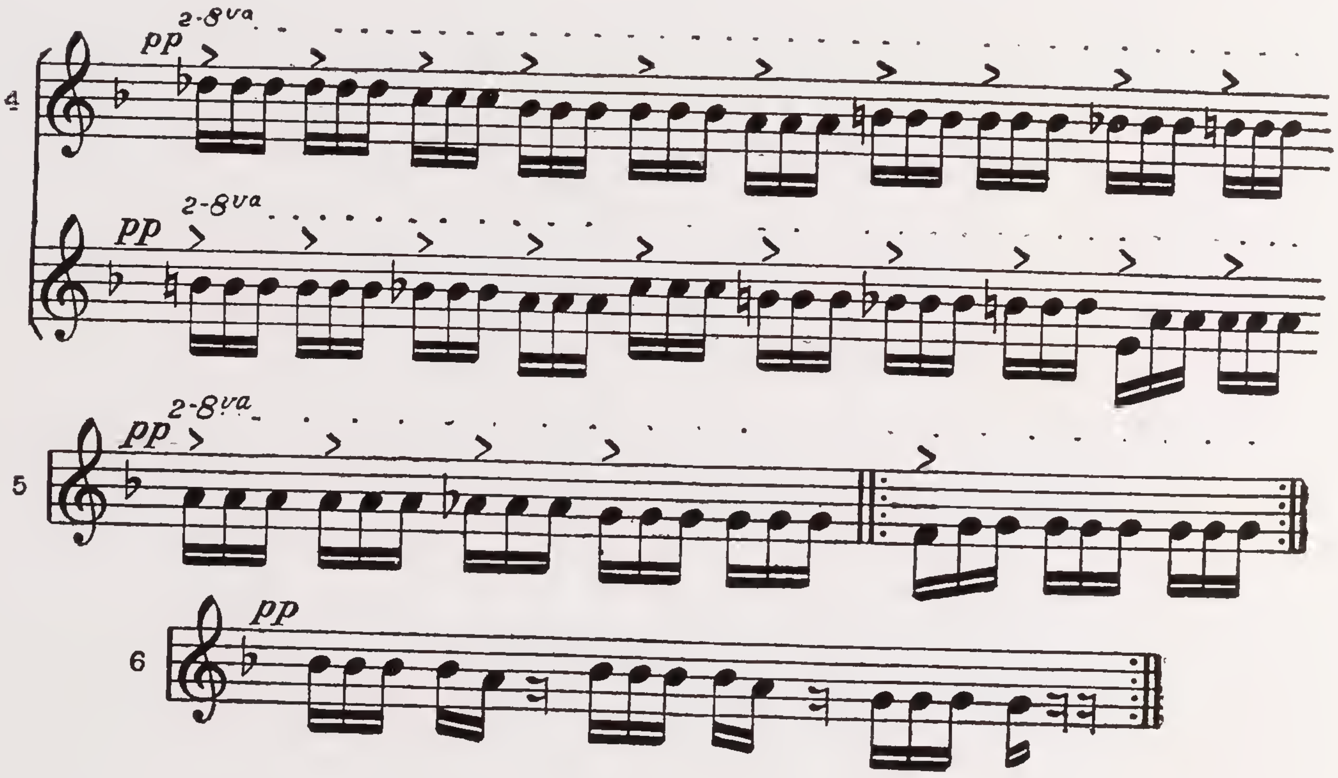
The warbler, which is almost always seen in pairs, has, like the fantail, taken kindly to the coming of civilization, and may be heard through the greater part of the year, chiefly from May to February, even in the environs of the larger towns. Potts's eulogy (PO, p. 130) of the bird, written long ago, may be repeated, for all small birds have long stood in peril through the alleged sins of a few; the warbler, he said, "seems to appreciate readily man's ideas as to improving the face of nature; very little planting or gardening is needed to attract its presence, a brown patch, gorse hedge, or a few blue gums, is looked upon as a card of invitation, and the merry little warbler may soon be found quite at home, trilling forth its somewhat plaintive note. The fruit grower need not take the alarm about this bird, its habit seems purely insectivorous;

the writer placed in the Canterbury museum a pensile nest of this species that had been built in a currant bush, showing some of the bunches of crimson berries which had ripened against the well-felted sides of the nest, and were left all untouched by the parent birds and by their tender offspring.''

The song is a trill rather than a warble, the notes being clear and distinct, and only occasionally lending themselves to vocalization. When two birds are searching together for their insect prey, they indulge in a faint, cheerful, twittering conversation. I saw two feeding in this way, keeping close together as they flitted from spray to spray, searching under the leaves and in the crevices of the bark with their bright eyes. Once one as it were kissed the other,—very quickly—no more than a peck;—probably a *bonne bouche* was offered and taken. Now and again a soft, barely audible exchange of notes took place, sounding like monosyllabic endearments, as in (1), the sound being almost like ''You, you; you, you.'' I heard two uttering the slurred call and reply of (2); and when they came and settled above me, busily scrutinizing all likely insect lurking-places, one continually repeated quickly the notes of (3). In the vocalization the *d* of *dear* sounded as when one speaks the word dear without the tongue quite touching the palate. The first five couple of notes took little over a second in utterance; the *tee tee* was nearer the sound of a whistle.



The common song in the bush of Stony Bay, Banks Peninsula, is a long, plaintive, rambling, indeterminate trill, lasting usually about five seconds, but running on without break often for eight, and for so much as twelve seconds, about eight notes to the second, as in (4). Whilst as a rule the bird seems to have no idea of rounding off this rambling song, which may terminate abruptly at any point, it is occasionally terminated very neatly as shown. The rambling song at times drops into a series of nine notes, as in the close of (5), the nine notes being repeated over and over. There are variations in which the opening differs, and the iteration is in sixes instead of the nines of (5). This song sounds more like a rambling soliloquy; it is more or less tentative, and is more softly sung than (5) or the ordinary

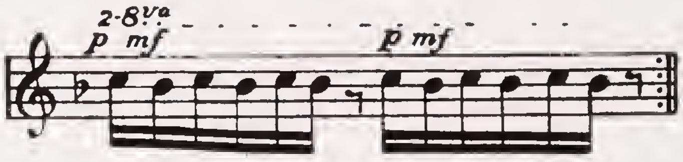


song to be described,—as if the bird were trying its voice, and might at any moment break into melody. It is again varied, as in (6), where the dropped note follows instead of opening the repeated series, and the number is reduced from six to five, followed by a rest. The full phrase (6) was repeated several times, its close giving it a different character from the themes, of which it is nevertheless a variation.

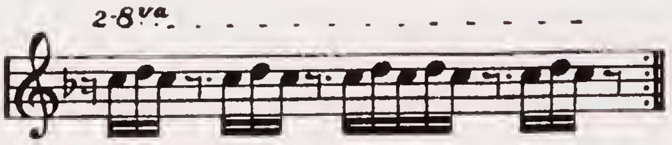
The bird is not usually seen readily, being shy and unobtrusive compared with birds such as the fantail, tom-tit, and robin, but at times it appears to lose its timidity, and will then feed and sing close to the observer. Whilst singing, it will sometimes sit in one place, turning from left to right and from right to left, as if to an audience of wood elves, of Nuku-mai-tore, the skin of its throat and neck dilating and throbbing, and its tail quivering as it trills out its gentle plaintive melody; or it will sing whilst moving about briskly here and there, now erect, now suspended upside down, never ceasing its melody unless interrupted for a moment by the capture of an insect. The usual trilling song may best be reproduced on a violin, but there is another indeterminate song of quite a different quality, its sound being rather that of a cheerful whistle.

The phrase (7) was repeated six or eight times by a warbler sitting close by, and within sight, and each set of six notes and rest taking about a second. The repeated phrase was followed by the ordinary song, and the quality of the two was different both in timbre and in utterance. The whistled phrase (7) is cheery and bright; the ordinary song is subdued and melancholy, and slightly ventriloquous; so that the two songs, though sung by the same bird, appeared to come from different places, the ordinary song from a place further removed. The first note of the six is more softly uttered, so that at a distance there would be heard only five notes, or an odd number, as in (8). The latter (8) was recorded two years before I saw the bird and was able to identify the singer. The ordinary song is often opened with notes like the fantail's *tweet-tweet, tweet*, or *tweet-a-tweet*, or *tweet-a-tweet-tweet*, and it may also be opened with quiet little chuckling guggle of notes, as (9), much softer than the song, repeated in two or three sets of three. Even when uttered within two arms' length of the listener these guggling notes sounded extremely faint and subdued, and it is certain that a great deal of beautiful bird-song is never heard at all by human beings.

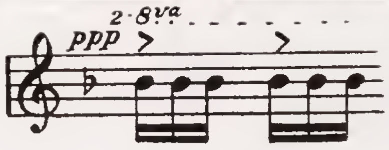
7



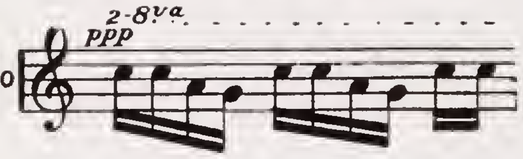
8



9

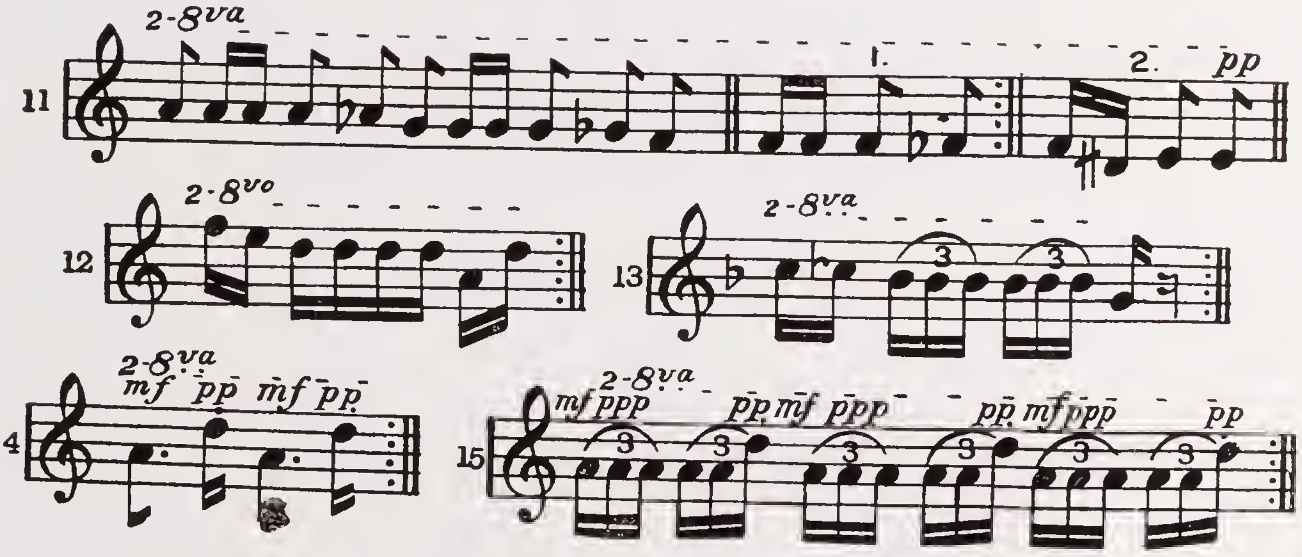


10



The theme (10) is one of these scarcely-heard songs: it is almost a bird-whisper, with a sound somewhat like that produced by rubbing a wet finger on glass. Each group of four notes takes about half a second in utterance.

In the valley-bush on Banks Peninsula where many of these warbler notes were recorded, slender, misty-foliaged coprosmas grow here and there in glimmering thickets under the pillared totara and matai, and it is a pretty sight to see the warblers searching for prey amongst those shrubs. The birds try to settle on the thin, springy, yielding twigs, sometimes opening and closing the tail fan-wise very quickly; and sometimes they poise, fluttering in one position, tail downwards and broadly spread, so that on the ventral side they show a bar of white along the tips of the tail-feathers. When fluttering among the small leaves where the branch-tips are too delicate for foothold, the waft from the wings makes the surrounding green quiver like mist blown by a faint wind.



When heard away from the bush, among the haunts of men, the song appears to assume more definiteness. The theme of (11) is the one I commonly heard in the bosky environs of Christchurch when resident there.

The theme is quite definite, and may be repeated many times without break,—a very pleasing, plaintive melody. Occasionally the last four notes are varied as shown, the enharmonic note being uttered with some uncertainty, and the last note very faintly. During one year, I did not hear the song continued beyond the variation when that was introduced; during the following year, however, it continued after the variation as after the ordinary close. It will be observed that the notes are here in twos; not in the more usual threes.

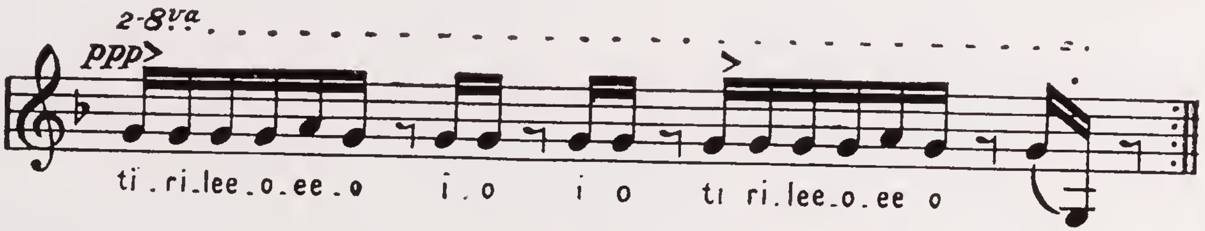
A simple little theme (12) heard at Hokitika, was in twos, varied by the introduction of triplets, as in (13). The phrases may be repeated several times in succession. The theme took two seconds or a little over, and other variations were recorded at the time.

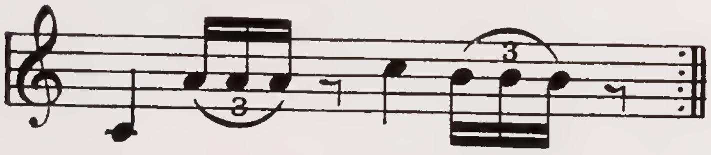
The bird does not weave several themes into one continuous song: it appears to have a number of themes, and sings sometimes one, sometimes another, lengthening its song simply by repetition. At times the song is made up of a curious alternation of loud and soft notes, which quite alters its character according as it is heard at a distance or near by. The notes of (14), a long fairly loud note followed by a soft staccato note, were heard in Wellington, but on a nearer approach the long note was resolved into triplets as in (15), the soft staccato note being the third of the second triplet, though it sounded like the introductory note of the following triplet. These notes are very quickly uttered, the whole of the phrase (15) taking only about two seconds, perhaps nearer a second and a half. The same alternation of soft and loud notes is heard in many other variations, but a few only are noted here.

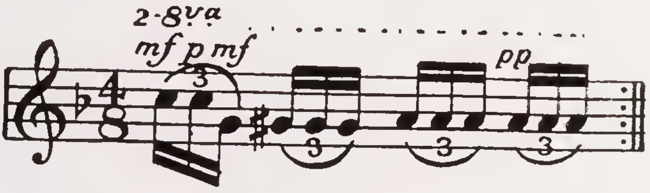
There is a certain sameness, though not monotony, in most of the foregoing songs taken as a whole, but (16) is of quite a different character. This, heard in Wellington, was very quickly and very softly sung, the whole in little over two seconds, and repeated several times. Though there was but little variation in the notes the charm lay in the quaint vocalization, which sounded almost like "*Cheerily, oh ye oh; ye oh; ye oh; cheerily oh ye oh,*" the *i* in *ti* and *ri* being short like the *i* in *hit*. There was accent on the first of each six only, and the slurred note was very staccato, and it may have been the vocalization that caused the apparent drop of an octave. The warbler's notes are often near vocalization, but these were exceptionally distinctly vocalized. Very distinctive is (17), in which the low note only was vocalized, the others being softly whistled, the time taken for the whole being about a second and a half.

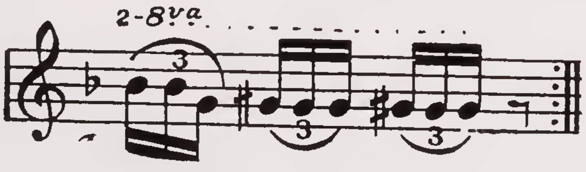
The most common song heard in and around Wellington is (18). This theme, repeated from three to six times or more, makes a very attractive song, and in it the bird displays considerable art. The theme is greatly varied, both in sequence of notes, and in colour of consecutive parts; and the bird in it, moreover, seems conscious of time, as the song falls into perfectly regular bars.

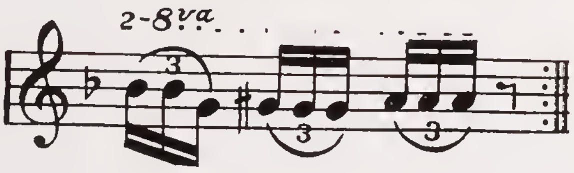
There is no doubt that the bird is able to use at will intervals less than semitones, as variations with enharmonic notes have been recorded, and checked many times during weeks and months before being finally set down as definite. The variations (19) and (20), for instance, were heard on the same day, and on one occasion within a few moments of each other, the difference in the interval of the closing notes being very marked;—one was distinctly g half sharp to g sharp, the other g half sharp to a. This common phrase takes about a second and a half; so that if repeated six times without break, as it often is, it lasts nine or ten seconds.

16


17


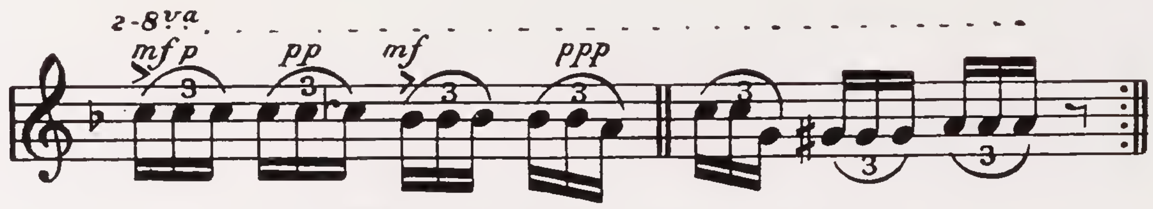
18


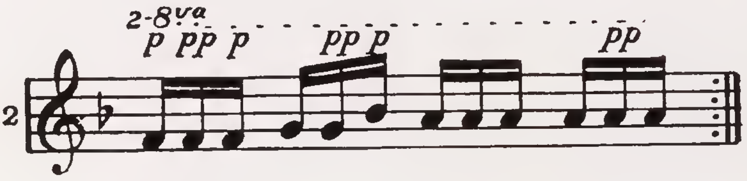
19


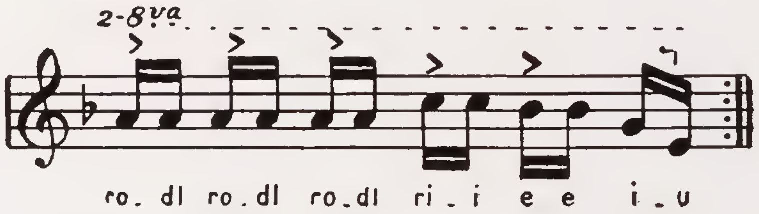
20


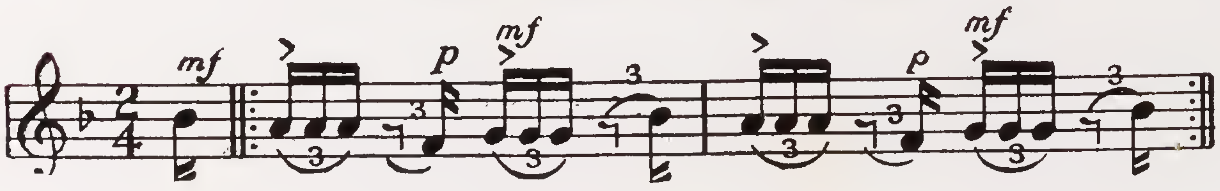
At times the common theme opens with a variation of (11). The alternation of loud and soft notes shows how this opening, (21), may at times sound like (11); but I have been quite close to the bird and heard both themes, so am confident the bird is able to sing the variations at will. When the theme is opened in this way, on being repeated the opening is omitted. If the bird would combine more of the themes in the way these are combined, it would be one of the finest, as it is our most constant, songster. At times the softened notes are sounded but not heard; at times they are not sounded.

The character of this common Wellington song is plaintive; but the theme is also varied in a way that changes its character to one of cheerfulness. This variation is most commonly heard as (22), the theme rising and falling instead of falling and rising, the effect being very much the same as the opposing

21


22


23


24


themes opening and closing Greig's "Death of Ase." At a distance, again, the softer notes are lost. Several variations of this theme have been noted in various parts about Wellington. In (23) the usual triplets are replaced by pairs, which are sung more slowly; the notes, too, are vocalized. At a distance the first ten notes were followed by a rest: on the bird being approached, the faint slur *iu* was heard in the place of the rest. This free mingling of twos and triplets, whilst perfect time is kept, is evidence of the bird's ear for time.

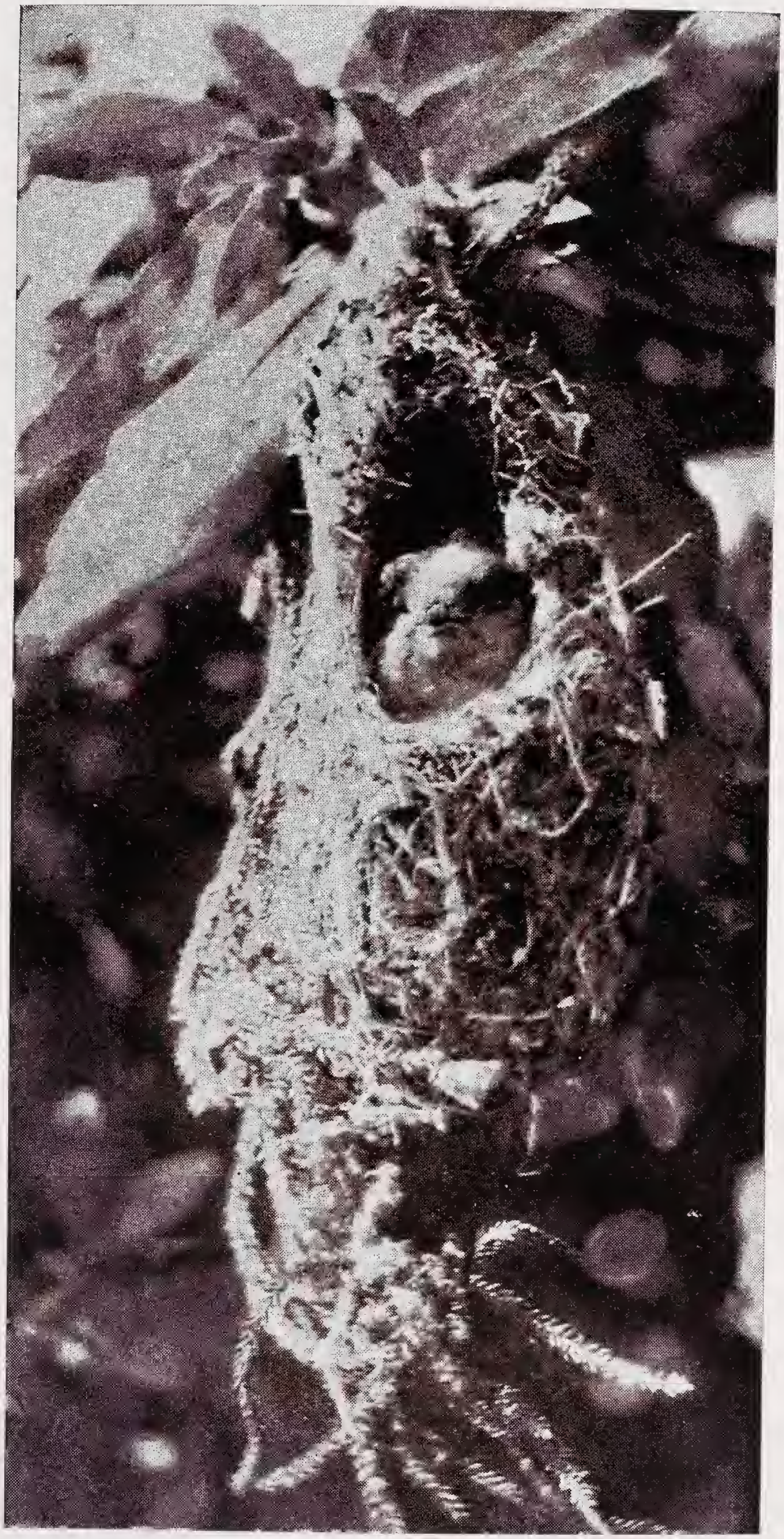
My reason for supposing that there may be two species of warbler is that in each of the two the song, besides differing in general character, more particularly in definiteness, has two distinct qualities,—one plaintive, one cheerful; the bird combines the charms of L'Allegro and Il Penseroso. The one I think of as the bush bird, which I have heard only at Stony Bay and in Westland near Hokitika, sings the two distinctive songs (4) and (7), with their variants; the one I think of as the town bird, or bird of the open, sings the songs (18) and (22) with their variants. I have heard both bush bird and town bird combine the two themes, following the cheerful one with the plaintive,—a charming combination, and the beginning of true music.

In one early spring song, a pair of birds flitted together in the tree, the male singing whilst the female, with wings fluttering and quivering, moved from spray to spray lower in the branches. She was a beautiful soft dove grey colour on the breast, darker on the back. The theme of (24) was also an early spring song. This was in perfect 2 time; a rhythmical swinging theme, repeated many times without pause.

An additional interest attaches to the semitones and quarter tones of this bird's song, and to its comparatively limited compass and the often indeterminate quality of the song, for it is said that these influenced the Maori in his music, much of which partakes of the same apparently enharmonic and indeterminate quality.

Of the ten Maori names recorded (WJ, p. 198), the one most commonly used is riroriro. Its plaintive song is heard more frequently, after a short period of silence, in the early spring, the season of preparing the cultivations of the old-time Maori for crops. For this reason arose the proverb *"I hea koe i te tangihanga o te riroriro?"* (Where wast thou at the crying of the riroriro?) a proverb used for shaming a lazy or careless person who was without cultivated food, especially when begging. (Tr. Vol. 12, p. 117). Hearing the song, *"Kua tangi te riroriro,"* (The riroriro cries), the people would say, signifying "Planting time has commenced; let us be up and doing." (BN, Vol. 1, p. 45).

There is a story concerning one Hau-tupatu, who, fleeing from his brothers on account of ill-treatment, and hiding in



[*H. Hamilton, photo*

Young shining cuckoo, from New Plymouth, in nest of grey warbler. The opening has been very much enlarged by the young bird.

the forest, was captured by a kindly ogre-woman. She took him away and kept him prisoner in a cave, where she also kept, as pets, all kinds of birds. She treated him well, bringing to him all the best of foods as he desired them; but he tired of confinement, and longing for liberty, determined to escape. On her one day asking him where he wished her to go to procure food for him, he indicated a range of hills a great distance away, thinking that she would be away so long that he would have ample time to escape. She went; he closed up all crevices, so that no bird might escape to warn her; he ungratefully broke the cages in which she kept her birds, and killed many of these before leaving the cave. But a tiny riroriro escaped, and flew off to the woman, whose name was Kurangai-tuku, crying to her as it flew, ''*Kurangai-tuku; Kurangai-tuku; -e- ka riro a taua hanga! riro, riro, riro!*'' (Our property is escaped; gone, gone, gone!) from whence the bird was called riroriro. The woman possessed a substitute for seven-league-boots, and muttering a charm, ''Stretch out, stride along; stretch out, stride along,'' she was able to stride from hill to hill, and soon overtook the guilty fleeing Hau-tupatu, but he, by murmuring a charm also, escaped the punishment he deserved.

This tale almost suggests that the young cuckoo and Hau-tupatu are one and the same. For the riroriro is one of the chief foster-parents of the New Zealand cuckoo—a bird ridiculously large to be reared by so tiny a creature. Now the young cuckoo does not require feeding as long as the young riroriro, so it happens that on a day the bird comes to the nest with food, and finds the chick gone. In distress it cries *riro, riro, riro,*—gone, gone, gone,—and so on over and over and over. According to the position in which the nest was built, the Maori was able to foretell the weather; if the nest were hung high, it would be a calm season, rough if hung low in sheltered branches. The opening would be turned away from the direction of what was to be the prevailing wind.

The tom-tits of the two islands of New Zealand differ in coloration, the North Island species being white-breasted, the South Island species yellow-breasted.

The white-breasted tit.—Male: head, neck, and back black, with a white spot over the bill; breast and abdomen pure white. Wings, brownish-black, some of the primaries and secondaries with a band of white. Tail, blackish-brown, the three outer feathers with a band of white. Eye, black. Bill, blackish-brown; feet paler, yellow on their inner surface. Total length, 5 in., of which the tail is 2¼ in. Female: Above, brown, with a small white spot over the bill; throat brownish-white, abdomen yellowish. Wings and tail like the male, but the white on the wings tinged with yellow. Young: In each sex coloured like the adult, but the tints paler, and not so pure.

The yellow-breasted tit.—Like the last, but male yellow on the under surface, bright on the breast, paler on the abdomen.

An almost pure albino was recorded from the Rangitikei district by T. W. Kirk (KI, pp. 42-3), the only indication of the normal colouring being a small patch of faint grey on one of the primaries: the whole of the remaining plumage was a most clear white.

Eggs.—Four; creamy white, freckled all over with yellowish-brown, the markings running together and forming a zone at the larger end. Almost round in shape, a little over four-fifths of an inch in length, and four-fifths in breadth.

Nest.—In the hollows of trees; it is round and compact, and is composed of dry moss, grass, and vegetable fibres felted together, the depression two and a quarter inches in diameter.

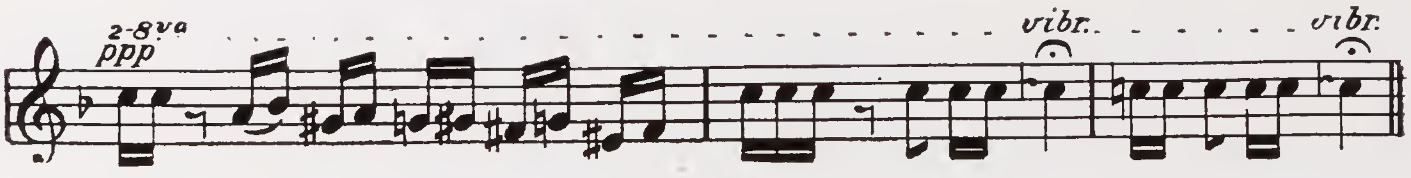
"Of the tit or yellow-breasted robin," says Potts (PO, p. 130), "we must say a few words; in some parts it is called a robin, because it shows a large amount of that endearing confidence and familiarity that distinguishes the red-breast of the old country, and renders it almost a sacred bird. 'Yellow-breast' and his more sombre plumaged mate attend closely the labours of the gardener; with patient assiduity they watch the turning over of the soil, as spit after spit falls from the keen-edged spade; the larvae of grasshoppers, chafers, and beetles form the chief part of their prey.

"You may observe how jealous a little fellow is the cock bird; in the breeding season he attends his mate well, but in the autumn and winter months he seems to take care of himself; let any others of his species trespass on his particular beat, whether male or female, they are forced to retire or drive him away; so with his virtues must be added the characteristics of jealousy and pugnacity. This familiar little bird has a chance of outliving the trials of civilization from its confidence; in an old lean-to of a cottage here, we have known it twice affix its nest to the wallplate in angles formed by the rafters."

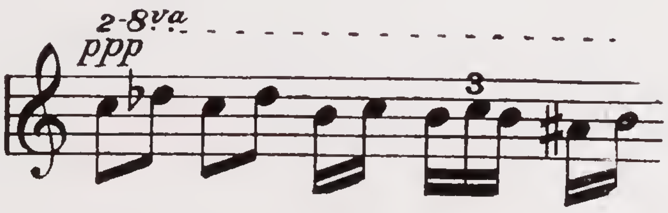
It must be remembered that Potts wrote some forty years ago; and whilst the tom-tit is still common in most parts where the Maori bush is undestroyed, it does not now so commonly frequent the haunts of man.

The quality of the song of the birds in the two islands is practically the same, and it is little varied. Most of my observations have been with the yellow-breasted tit, whose usual and most characteristic song is a trilling upward slur falling in semitones, as in (1). This is very softly sung, both during flight and at rest in the tree. The sound is a soft twitter, nearer a whistle than the twitter of the fantail. The theme takes under two seconds, and is usually sung once, being repeated at intervals. At times it is followed by the part after the first bar, and of this second part, the short theme between the second and third bars may be repeated two or three times. The opening cascade is varied at times; I once heard it drop from *b* to *g* by five steps, so that the intervals would appear to have been slightly less than quarter tones. The throat and tail quiver slightly during the cascade song, the quivering of the tail being more pronounced when the vibrato in the second part is sung.

1

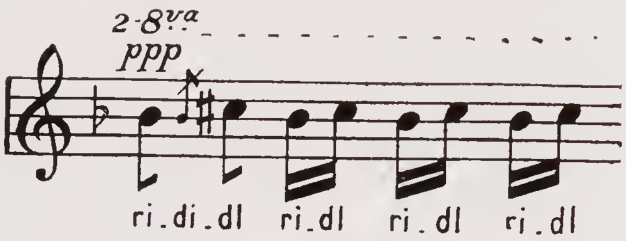


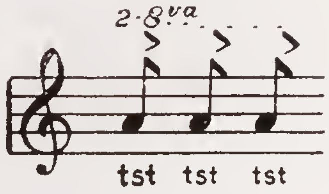
The theme (2), taking from 1½ to 2 seconds, is one of several variations noted. The opening notes are used also as call notes, for in reply to one bird that repeated these notes—with an

2


interval of a quarter-tone instead of a semitone, another answered with the cascade song (1) repeated six times in succession.

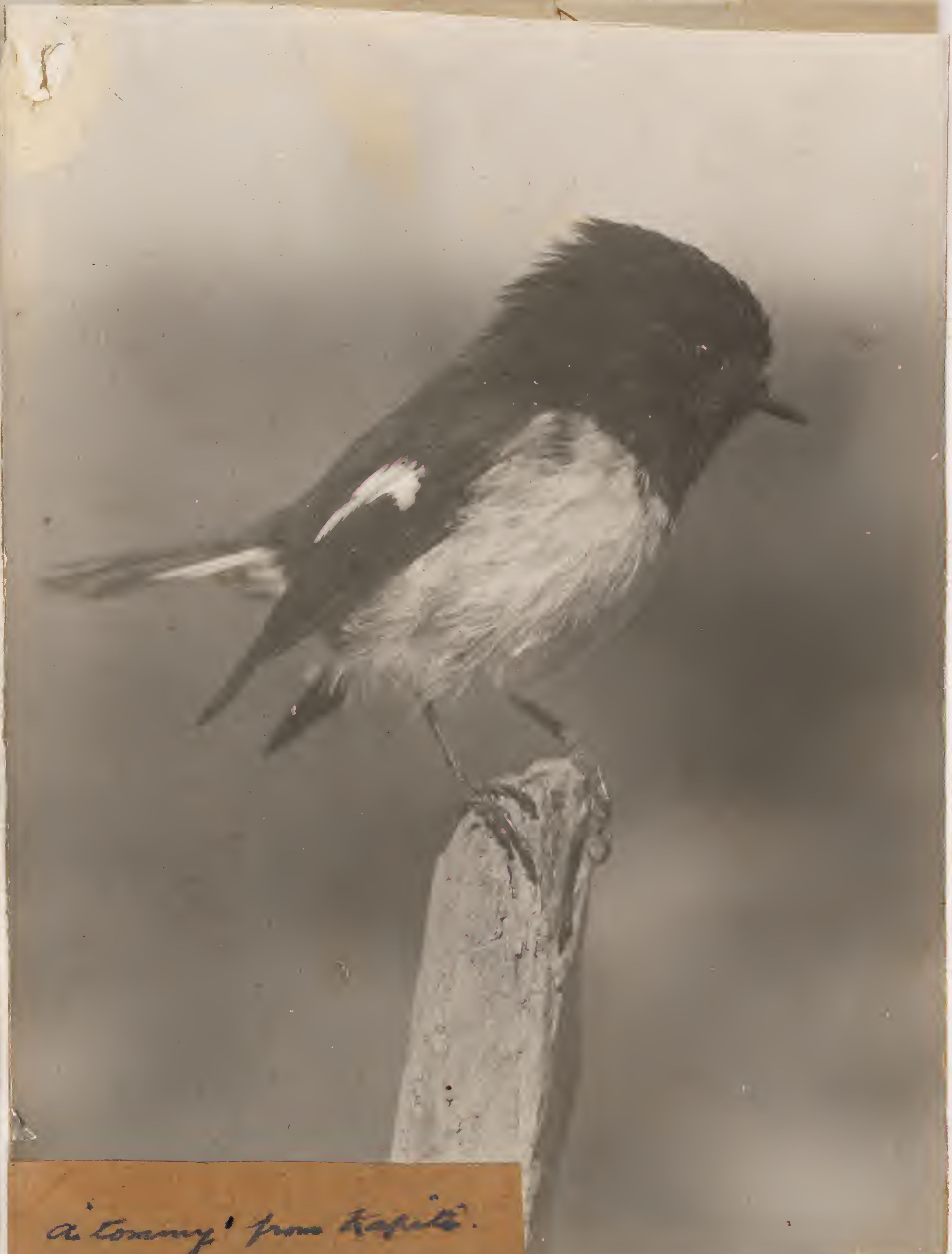
The foregoing songs were sung by yellow-breasted tits; a white-breasted tit sang (3), the phrase being a vocalized trill taking about a second, and being repeated two or three times at intervals of a few seconds.

3


4


The bird is very quick in his movements. He will appear instantaneously during the winking of the eyes, the slight swaying of the vine on which he supports himself, bright-eyed and motionless, being the only indication that he has alit from somewhere, and has not sprouted miraculously from the vine itself. Often after appearing in this way he gives assurance of vitality by uttering three sharp whistles, with the sound of *tst* as in (4). This may be to announce his presence; or it may be a warning-cry to the Nuku-mai-tore or other not-far-distant wood-fairies.

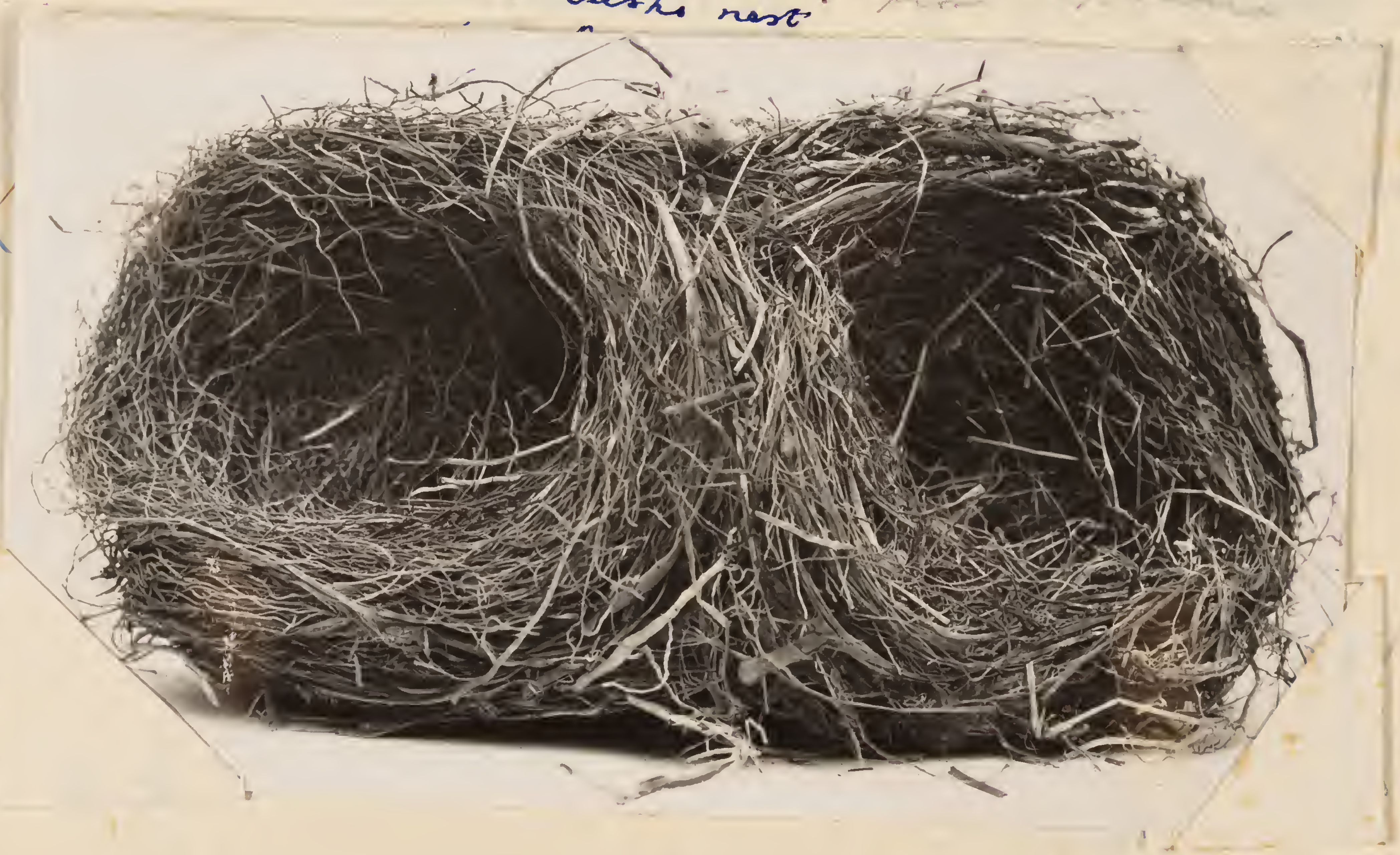
A. Reischek writes (Tr. Vol. 19, 1887, p. 185)—"The song consists of six notes, as '*ti oly oly ho,*' which he always repeats twice." This vocalization, however, does not agree with any song of the tit ever heard by me; the syllables *ngiru-ngiru,* as noted by Buller (BN, Vol. 1, p. 40) are nearer what vocalization there may usually be. Reischek's syllables might apply,



a 'tommy' from Kapiti.

on dbl nest see
Bird-and p. 30 ... Bird Song
Copy this

Dbl. thrush's nest from [illegible]



"Risby"
18, Batt Street,
Palmerston North.
28 March 1955.

Dear Mr. Andersen,

I received your letter and later the big bundle, but I have not yet had time to go through the galleys. I am very glad to have your corrections and suggestions. They will be a great help. Like you I can't quite understand why the proofs should be submitted to a third party. I am writing Mr. Reed about it.

I am glad to have your views on the technical points you raise and gladly defer to your opinion in these matters.

I have seen the Monika picture which Mrs. Vane had done and I must say that I am a bit worried about it. I don't think it fits at all. The man is clothed only in a piu-piu, not even a waist mat, whereas Te Kooti's men wore European clothing, and his hair is done in a to however, to the cheery whistling song of the warbler, (No. 7); and, indeed, when I first recorded that song I noted it as the song of an unseen bird awaiting identification. Some time afterwards, from the tree whence I again heard the song, there flew together a warbler and a tit, and Buller, in the place quoted, speaks of these two birds singing together in the one bush. It was two years after this that I actually saw the warbler singing the unidentified song.

Of the sixteen Maori names recorded (WJ, p. 198), the two most commonly used are miromiro and ngirungiru. The former name appears in the proverb "*Ma te kanohi miromiro*" (For the eye of the miromiro) (Tr. Vol. 12, p. 119, and GK, p. 66), used as a stimulus to a person searching for anything lost. But there might indeed be something lost for which all the searching of the loser might be in vain;—a husband, or a wife, or a lover;—and to these the miromiro would appear as a messenger of love. An obdurate youth, an unwilling maiden, might flee to a distant village in order to escape the unacceptable advances or the reproaches of a lover; or a husband might desert his wife; or a wife her husband. If then it happened that a bird largely marked with white such as the miromiro of the North Island appeared to the runaway, more especially if it entered the dwelling where the desired one had sought refuge, love entered with it; and thereupon the runaway, no matter what the hour, would be so filled with the image of the absent one that all resistance would melt away; and though rivers and mountains and wild ways lay between, there would be such a spell at work that the fugitive must at once return, when all distress would be ended.

Another proverb said "*Pipitori nga kanohi, kokotaia nga waewae, whenua i mamao, tenei rawa,*" (If you have eyes sharp as pipitori (tom-tit, though Grey translates it robin) with which to see a long distance, and sharp quick feet, distant places will soon seem near to you) (GK, p. 81).

In pure white birds the Maori saw some occult manifestation. The bright children of the sky were the source of light and life, as darkness was the source of death; and as the sun and moon may reappear, bright objects, from the darkness, so the spirit of man may reappear to his people from the darkness of death, and this it does in various winged forms of birds and insects, especially in bright or white forms. Of all the Maori birds, the most highly valued was the graceful snow-white heron, the kotuku. *"He kotuku rerenga tahi,"* says the proverb; (A kotuku, whose flight is seen but once), so rare was the bird, (TI, p. 130, and GK, p. 57). It was as a kotuku that Tama-nui-a-raki appeared to his kinsfolk in the underworld. A cluster of white albatross feathers was a highly prized ear-ornament for a chief; and the white-tipped tail-feathers of the huia were worn only by chiefs of high rank. So, too, the rare creamy white feathers of the kaka were prized, and those of the seldom-seen pure white pigeon; but if these feathers were worn, the bird from which they were taken was not used as food, but burnt with fire.

"He mate kahu korako," says the proverb:—"So you want a rare white hawk, do you?" (GK, p. 20), applied to a man of low rank falling in love with the daughter of a chief; or to a person desiring something impossible of attainment.

So, again, if a white bird flew into a dwelling it caused a great stir. A white fantail, most rare and beautiful bird, has been known to fly into a dwelling, and soon afterwards the woman heard of the death of her sister: that, then, was her spirit.

There is a marked tendency of birds in New Zealand towards albinism; and it was no doubt the comparatively rare occurrence of these white birds that caused the occult significance to be attached to them by the Maori. Amongst human beings, albinos were considered to be the offspring of the wood-fairies, the Patu-paiarehe, who were said frequently to surprise women in the bush (TI, p. 47); at any rate, the women said so, and why should they not be believed?

The robins of the two islands differ in coloration as do the tom-tits.

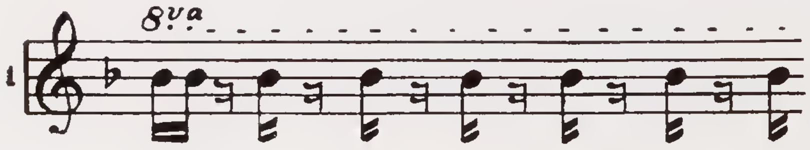
South Island robin.—Colouring similar to the North Island robin, except that the band on breast and abdomen is yellowish-white; bill and feet brownish-black.

There are different species in the Chatham Islands and the Snares; these are jet black, the wings brownish.

Eggs.—Three; creamy white, thickly freckled and speckled with purple and brown, the markings denser at the thick end, where they form an indistinct purplish zone.

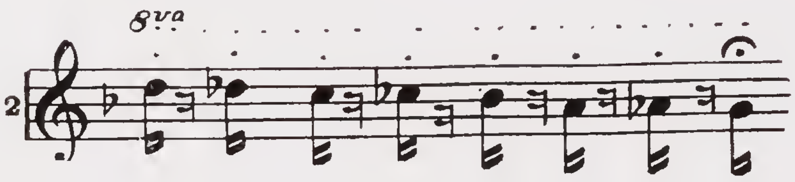
Nest.—Usually built against the bole of a tree, at a moderate height from the ground, and is often found attached to the wiry stems of the kiekie, a climbing plant everywhere abundant. It is large and compact, and is composed of coarse moss firmly interwoven, and thickly lined with the soft down of young tree-fern frond-stems.

The South Island robin does not sing, or has never been heard singing. Its ordinary note is a clear sharp whistle, as in (1), with which it seems to greet the intruder when first it appears in his presence. It is often seen on the ground; and it approaches in a quick series of long-legged hops, which have the character of the abrupt notes themselves.



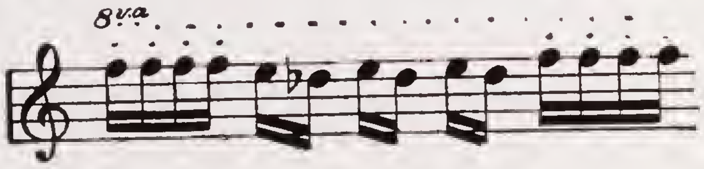
North Island robin.—Greyish-black, with a small white spot over the bill, and a broad band of white on the breast and abdomen. Eye, black. Bill, blackish-brown; feet, pale yellowish-brown. Total length 7¼ in., of which the tail is 3 in. The female is rather smaller than the male, and is greyish-brown in colour. The young is coloured like the female, and the white spot over the bill is obscure.

The robin is now rare in most places at all accessible, but on the sanctuary of Kapiti Island I have found it plentiful. There I heard the phrase (2). This phrase was heard several times,

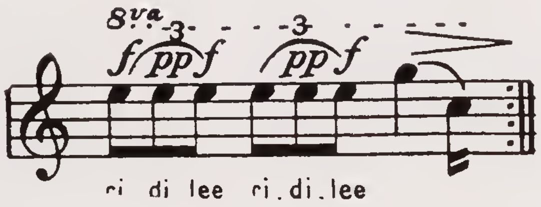


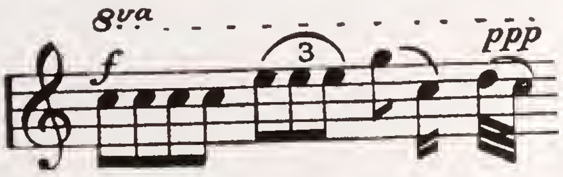
and the notes were clear, sharp whistles, like those of the South Island bird, six to seven uttered in a second: the drop may at times include ten notes, occupying the same total interval.

I have been told that the North Island bird is a fine songster, but I have never been so fortunate as to hear its song. I have heard a song begun as in (3), but it went no further.

3


A song was begun as in (3), but went no further; and on another occasion a robin immediately overhead broke into a song, all too short, consisting only of the phrase in (4), repeated as a whole, or with only one triplet instead of two. The second note of the triplet was very faintly uttered, as if it were not quite a separate note, but a "catch" in the voice; and at a distance the vocalization sounded simply *ti tee-oo,* or *ti ti tee-oo,* the *i* short as in *hit.* It was a sharp, plaintive whistle, the plaintiveness coming in on the slur. The robin flew off, whistling now and again as it went,--when suddenly a white-head settled near by, and astonished me by singing, in sight and hearing, the theme of (5). The opening notes are the characteristic notes of the white-head; but the close is an exact reproduction of the robin's phrase save for the curious soft final echoing of the slur, which I did not hear in the robin's song. It certainly seemed an instance of imitation—of more; of exact reproduction; for in hundreds of songs of the white-head,—and where the bird is, it sings unceasingly—this was the only occasion on which I heard the robin's phrase reproduced.

4


5


Whilst at Kapiti in January, 1917, I was climbing a spur, thickly covered with manuka, when a robin appeared, and on my sitting down he approached, nearer and nearer, until within a foot of my side. After a time he uttered a very subdued sound like *che-e-e-r*, almost like the muffled mewing of a kitten. He was apparently a young bird, for presently another approached and quickly popped a cricket into his bill. As the second bird approached, the first bird *che-e-e-red* louder and more continuously, fluttering with his wings: then both went off together. The young bird was as big as the parent, and both appeared the same in colour; almost black on the back, grey on the abdomen, darker grey on the breast; and it was noticeable that the dark hues of the back, head, and breast were marked longitudinally, in discontinuous streaks, with light grey, as if the body-plumage were light grey, overlaid with the darker colours. I heard more *che-e-ering* close by in another direction, so other young birds were evidently being fed, and I saw a goodly number of young ones during the day.

Of the eighteen Maori names recorded (WJ, p. 198), the forms commonly used are pitoitoi and toutouwai.

Family: Paridae

To this family belong the various species of titmouse in Britain, all permanent residents, and there may be objection to including these amongst the songsters. Wood says (WN, pp. 32-3)—"There are not many birds whose notes are unpleasing to me, but the Great Titmouse is one of them. It has no song, and scarcely varies its notes, continuing to utter its monotonous cry '*chee-chee-chee-chee*' without cessation"; and Yarrell (YH, Vol. 1, p. 480) whilst he says it has a song, admits that it "is more remarkable for cheerfulness and frequent repetition than for quality of tone"; he also says that some of the notes are harsh, resembling the sharpening of a saw. White says (WS, p. 188) that "the titmouse, which early in February begins to make two quaint notes, like the whetting of a saw, is the marsh-titmouse; the great titmouse sings with three cheerful joyous notes, and begins about the same time"; on which White's editor, Sir William Jardine, notes that "it is undoubtedly the great titmouse that whets like a saw. I have watched it for a quarter of an hour together; it has also cheerful notes."

Mudie (MF, Vol. 1, p. 391) has a higher opinion of the bird's song. "The great tit," says he, "has a chattering rather than a singing voice; but it has considerable flexibility of utterance. As it hunts in the trees, its chatter, though not loud, is harsh and grating, resembling that which is produced by the filing of iron; but in the pairing time it has a note not very dissimilar to that of the chaffinch; and the alternation of the note with the chatter, makes a sort of rude song, but that song continues only for a short time." This estimation of the song differs considerably from Wood's; but when the remarks of Bechstein (BC, p. 446) are read, the difference is yet more extraordinary. "These birds are recommended........" says he, "not only by their beauty, activity, and cheerful disposition, but also by their varied and exceedingly melodious song, which consists of the frequent repetition of the syllables, *Si, -tzi, -da. Si, -tzi,*

[*Wells, photo*

Stream in Wilton Bush, Wellington.

da. Stiti, Stiti, intermixed with the double call, *Fink, fink. Tzitzeer*........even old ones evince a readiness to adopt the songs, and especially the call notes, of other birds.'' It may be that the song differs in the two countries, as a song will often differ in two localities; but there is still a remarkable difference in the estimation of various writers of the song of any particular bird. As against these comparatively songless birds, New Zealand has three representatives of this family that are vigorous songsters;—the white-head, confined to the North Island; the bush canary, its South Island representative, and confined to that island; and the brown creeper, also confined to the South Island:—

Certhiparus albicapillus	the white-head	upokotea or pokotea
Mohua ochrocephala	the bush-canary	mohua
Finschia novae-zealandiae	the brown creeper	pipipi or toitoi

The white-head.—Head, breast, and abdomen, brownish-white. Back and tail, brown. Wing-feathers, dark brown. Eye, black. In the young the head and lower surface are greyish-white. Bill, black; feet, bluish-black. Total length, 6½ in., of which the tail is 2¾ in. (BH, Vol. 1, p. 54). The female is similar but smaller.

Eggs.—Three or four; creamy white, minutely speckled or marbled over the whole surface with reddish brown, the markings being denser towards the thick end, where they sometimes form an irregular zone. Length, four-fifths of an inch; breadth a little over half an inch.

Nest.—Usually built in a low shrubby tree, and is round, compact, and well constructed, being composed of soft materials such as moss, dry leaves, spiders' nests, shreds of flax, and sometimes wool, all firmly knit together. The depression is deep and formed of dry bents and vegetable fibres, and thickly lined with soft feathers.

The bird was for a time in danger of extermination; even in 1887 there were few places on the mainland where it survived. Buller (Tr. Vol. 24, 1892, p. 76), whilst on an expedition searching for the huia, states that whilst no huia was found,

"........we were rewarded by finding a pair of popokatea, or white-head, positively the only ones I have ever heard of on the mainland for the last ten years or more. I brought down both with a small charge of dust-shot, and have much pleasure in exhibiting them. I can remember when the bird was absolutely the commonest and most numerous in the North Island. It is now one of the rarest........" It is almost beyond comprehension how anyone who professes to be a bird-lover could be guilty of such an act, and further, confess to its commission. But from the general tenor of Buller's writing one must conclude he was a bird-collector rather than a bird-lover; very different from Potts of Canterbury, or Guthrie-Smith of Hawke's Bay.

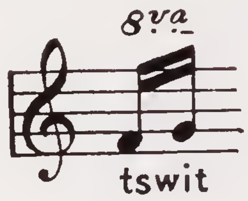
Writing of the white-head and bush-canary, Travers says (Tr. Vol. 15, 1883, p. 181)—"The latter is a very different-looking and somewhat more robust bird than its North Island congener, but notwithstanding this difference in size and the greater differences which the two forms present in external characters, they both have precisely the same habits and notes. The difference between the external characters of the species of Petroeca (tom-tit), Turdidae (thrush), Apterygidae (kiwi), and Ocydromus (woodhen) peculiar to each of the main islands, though less manifest than in the case of the two species of Orthomyx (whitehead and canary) is very well marked, but in each of these instances also the notes and habits of the birds are the same. In the case of the Corvidae (crow), the North Island species is only distinguished from the South Island one by its slightly larger size and by the colour of the wattles, but in this instance also the notes and habits of the birds are identical. It will have been observed, by those who have seen them in their natural state, that, with the possible exception of *Pogonornis cincta* (stitch-bird), all the birds of flight peculiar to the North Island, and with the exception of the two species of Nestor, all those peculiar to the South Island, which frequent forest habitats in the respective islands, are birds which never voluntarily rise above the level or move outside the limits of the forests in which they dwell, and the chances are, therefore, very remote that any of them should pass, in numbers at all events, across the waters dividing the two islands. The same observations may be applied to a large proportion of the species common and peculiar to the two islands, rendering it remarkable that so many of them should have retained common characters during the enormous period that must have elapsed since the formation of Cook Straits.''

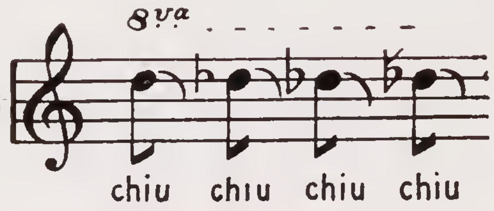
There is probably no doubt that the differences in the two representatives of these various species in the two islands are due to long separation by the waters of Cook Strait, sixteen miles wide at its narrowest part, and ranging up to ninety, but the two species of fantail are common to both islands, though the black is much more plentiful in the South Island than in the North, and these two species interbreed without apparent change in their characteristic distinctions. It would be an interesting experiment to place representative birds of both species on some well-severed island, and see if they interbreed, and if so, are the differentiating characteristics lost. It might be several generations before the difference, if any, would be detected.

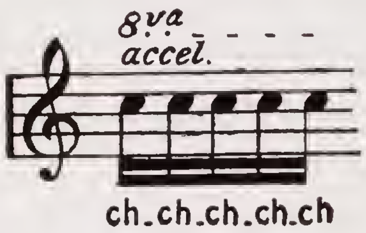
Both the white-head and the bush-canary, which go from place to place through the bush feeding in twittering flocks, were usually accompanied, or rather followed by a pair of saddlebacks. ''The birds were never seen singly,'' says S. Percy Smith, (Tr. Vol. 43, p. 166), ''but always in flocks of about thirty to forty, hopping about from branch to branch, with their little musical twitter. They were invariably accompanied by a pair of saddlebacks, tieki (or tiaki), who seemed to act as guardians of the flock, giving the alarm, when any one approached, with their sharp notes. The word tiaki in Maori means 'a Guardian,' and this, no doubt, was the origin of the name........'' It is doubtful, however, if the presence of the saddleback was due to any other reason than an economic one: the flocks of smaller birds doubtless disturbed a great deal of insect life of whose presence the saddlebacks might take advantage; disturbed insects, too, that perhaps formed the prey of the saddleback but not of the others. Such associations

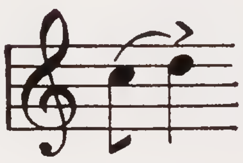
a flock of whiteheads is tataetō (ta. a flock) Best, Tuhoe 303 of birds are common enough in other parts of the world. In England, both the nuthatch and the golden-crested wren join parties of tits and creepers in quest of food (OC, pp. 13 and 92), the corn-bunting joins with larks or yellow-hammers during winter, (ib. p. 415), rooks and starlings, too, associate, (ib. p. 14). I have seen a bell-bird associating with white-heads, not without occasional disagreements. "If we do not much wonder," says White (WS, p. 417) "to see a flock of rooks usually attended by a train of daws, yet it is strange that the former should so frequently have a flight of starlings for their satellites. Is it because rooks have a more discerning scent than their attendants, and can lead them to spots more productive of food?........Perhaps, then, their associates attend them on the motive of interest, as greyhounds wait on the motions of their finders, and as lions are said to do on the yelpings of jackals. Lapwings and starlings sometimes associate." The Rev. J. Milford adds a note to this,—"........this is the case with other birds. The short-eared owl often accompanies flights of woodcocks in this country. In Greece, the cuckoo migrates with the turtle-flocks, thence they are called trigonokracti, or turtle-leader." In New Zealand the seagull associates with man if the man be behind a plough, and the tom-tit itself is often the familiar of the man with a spade.

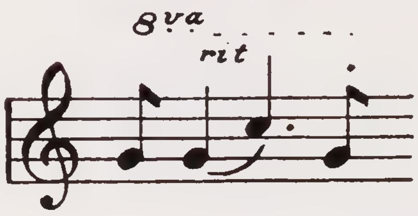
During three weeks on Kapiti Island in 1916-17, the most constant songster, and the most ubiquitous, was the cheerful white-head. It is gregarious, moving in flocks of from four or five to a dozen or twenty. In the karaka groves on the seashore; in the steep, rugged, scrub-shaded creek gorges; in the secluded, deep, but open forest-grown inner valleys; on the moister heights where mosses and hymenophyllum were masses of glistening green, on the gentler slopes and occasional flats beneath tree-ferns and Maori cedars; above the tangled brakes of looping supplejack and barbed lawyer; there the white-head was to be seen and heard, in little flocks of from three or four to a dozen or more; restless, twittering, singing, never still, never silent morning or evening, and only subdued, not suppressed, at mid-day, when most other birds are quiet in the recesses of the bush. Only on the dry manuka-covered spurs that here and there run down between the greener flanks of growth were they absent; and those spurs seemed the haunt of the robin. The white-head is evidently one of the optimists of the bush; he finds good and pleasure everywhere, and never scruples to say so. The most frequent cry is a quick slurred note, vocalized *tswit,* as in (1). This is uttered almost incessantly, as the bird searches usually at a height of from six to twenty feet above the ground, under leaves, and in the crannies of the bark, for lurking insects. He will pause

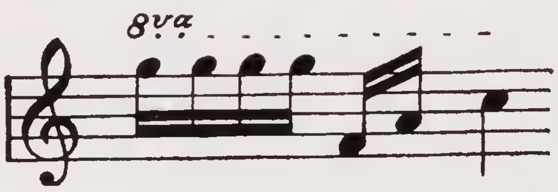
1


2


3


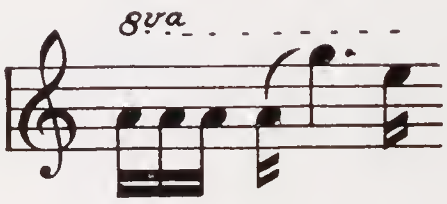
4


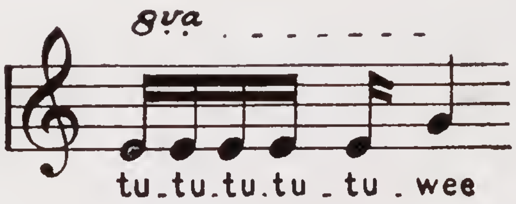
5


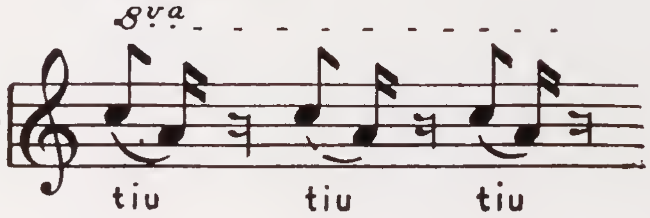
6


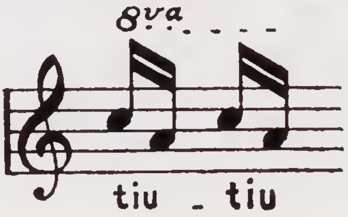
occasionally, stand erect, with head elevated, beak open, tail vibrating, and cry "all's right with the world," uttering the notes of (2) to (6), all of which, apparently, are calls that call for no answer, or answers to calls which may or may not have been given. All of these were uttered at times alone, at times in various combinations, two or three connected at random. The notes of (2) vary from four to ten in number, descending enharmonically from two to four semitones. The combinations most commonly used are (2) immediately followed by (3) or by (4), or (3) followed by (4). Less commonly (5) entered into the combinations. The enharmonic run (2) is very frequently sung, the small steps in the pitch being quite distinct; the vocalization *chiu chiu,* too, makes the notes sound as if slurred downwards slightly in every case. The notes of (3), sung much faster, lose all trace of the slur, their sound being *ch ch ch* instead of *chiu chiu chiu.* The notes of (4), an octave lower in pitch, are clear, mellow whistles, almost flute-like, quite different from the characteristic warble notes of (2) and (3); it is as though another bird concluded with (4) on the white-head opening with (2), but I have many times watched the bird whilst singing the two parts combined. I have heard one sit warbling (2) and (3), another answering with (2) alone. The notes of (2) are, in quality and fall, almost like the song of the chaffinch; and the combined call (2) (4) is on the same model as the song of the chaffinch,—a falling opening with a flourish at the close. When the combination (2) (3) (5) is sung, the result is rather plaintive, owing to the slurred crotchets at the close; usually the calls are loud, bright, vigorous, and cheerful. The combination call (2) (3) is uttered in about a second and a half; but it must be remarked that the tempo varies exceedingly,—from about 5 to 10 quavers a second,—and that, too, within very short intervals of time; the bird would appear to become momentarily excited, when the notes increase both in tempo and in loudness. The combination (3) (4) may be varied as (6) where again the low notes are clear whistles. The slur enters into other calls, as (7). This may be sung, at intervals, many times in succession, occupying a second and a half; at times there is a vibrato on the slur. The slur of (8) is at times sung as (11), being preceded by fuller, slower whistles, notes richer and more deliberate than the ordinary impatient warble-notes. The time taken by (11) is from a second and a half to two seconds. The opening notes are occasionally sung alone, the *e* flat being from one to three in number. The half-song (8) is also, at times, followed by the higher down slurs (9) and (10), sometimes one, sometimes both; and (8) may then be repeated. The full phrase (11), (9), (10), (9), (8), or like combination, forms the rudiment of an agreeable song. The number of semiquavers in (8) and (11) is quite indefinite. The notes of (12) and (13) make up phrases that suit well for song-building; the lower notes, as usual, are fuller and richer than the upper, and (13) has a plaintive close;—the notes *b* and *g* are not slurred, though they seem connected in the phrasing, as if an intended slur were broken by a momentary closure, keeping both notes pure. There is a faint vibrato on the *g,* though not always present.

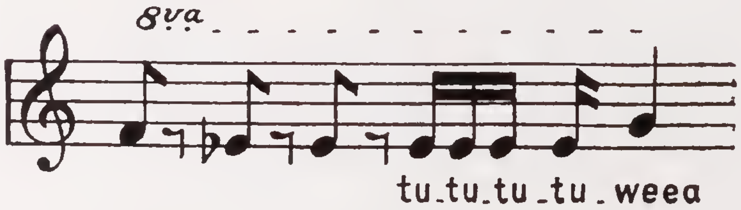
The notes of (14) to (16) are clear whistles, varying in number from three upwards, about four quavers a second. They are almost staccato, are not always clear, being at times vocalized as in (14), when it sounds as though the bird had a stone in his mouth. The first short note is vocalized *tu* (short *u* as in *but*). There is a curious and irregular variation in this phrase; it may open as in (14), or the first four notes may be omitted; and at times the last *d* will be sung *d* flat; or the last two notes may be sung flat, as in (15); or there may be a succession of flat and natural pairs as in (16). These semitone variations are evidently under control, as the bird appears to sing one or other at will, and whichever is sung is clear and unhesitating. The themes as in (14) and (17) are reminiscent of the fantail. The theme of (17) is a clear, rapid whistle of triplets, followed by the common enharmonic notes of (2).

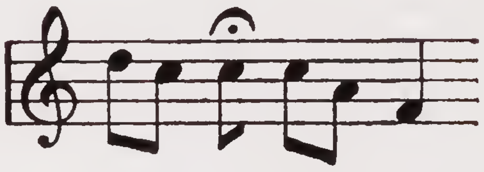
7


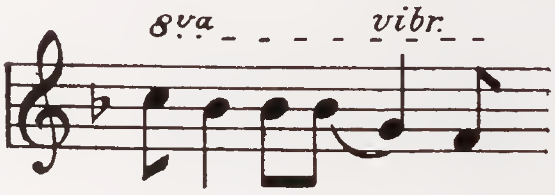
8


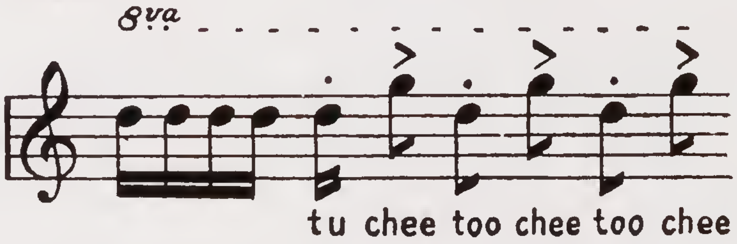
9


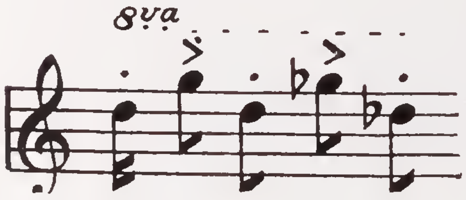
10


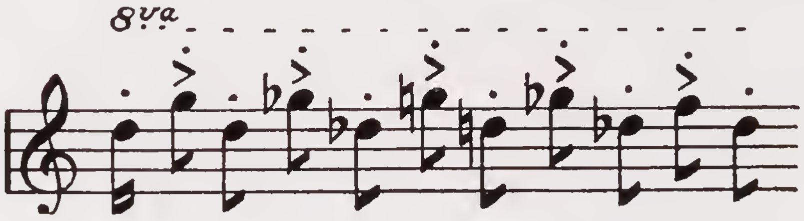
11


12


13


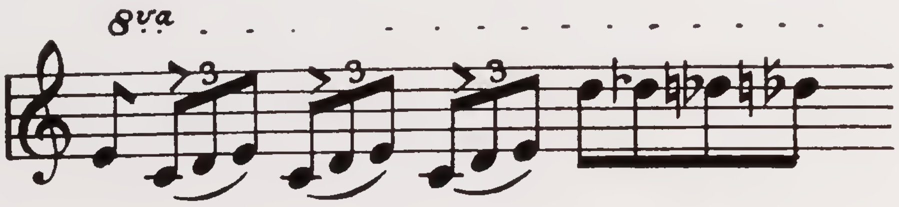
14


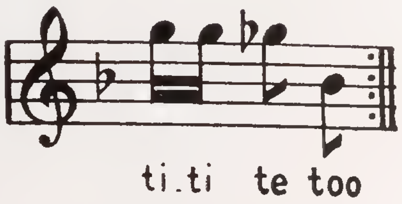
15


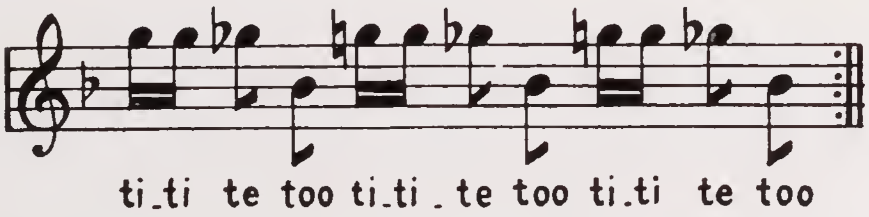
16


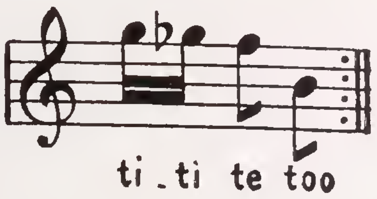
The phrase of (18) may be sung singly at intervals, or repeated twice, three times, or more. If three times, as in (19), a rapidly developed accelerato takes place, from about six to ten or more quavers a second. In the vocalization the *i* and *e* are short. The sequence is at times varied, as in (20) and (21).

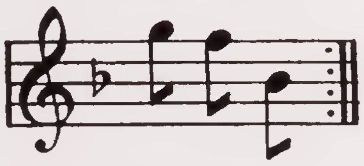
Whilst the usual notes of the white-head are simply phrases such as the foregoing, repeated either singly, or in various combinations, it has also a true song; that is, a continuous strain built up of various phrases combined so as not to be mere repetition. A portion of such a song is shown in (22); the phrases (*b*) and (*c*) enter into it largely, and these impart the canary character to the song. The phrase (*d*) is (*a*) repeated without rests, and with an accelerato running through it. These phrases are combined in various other ways, but the song is not sustained for any great length of time, though it continues, in strains similar to the above, with breaks between the strains, at a speed

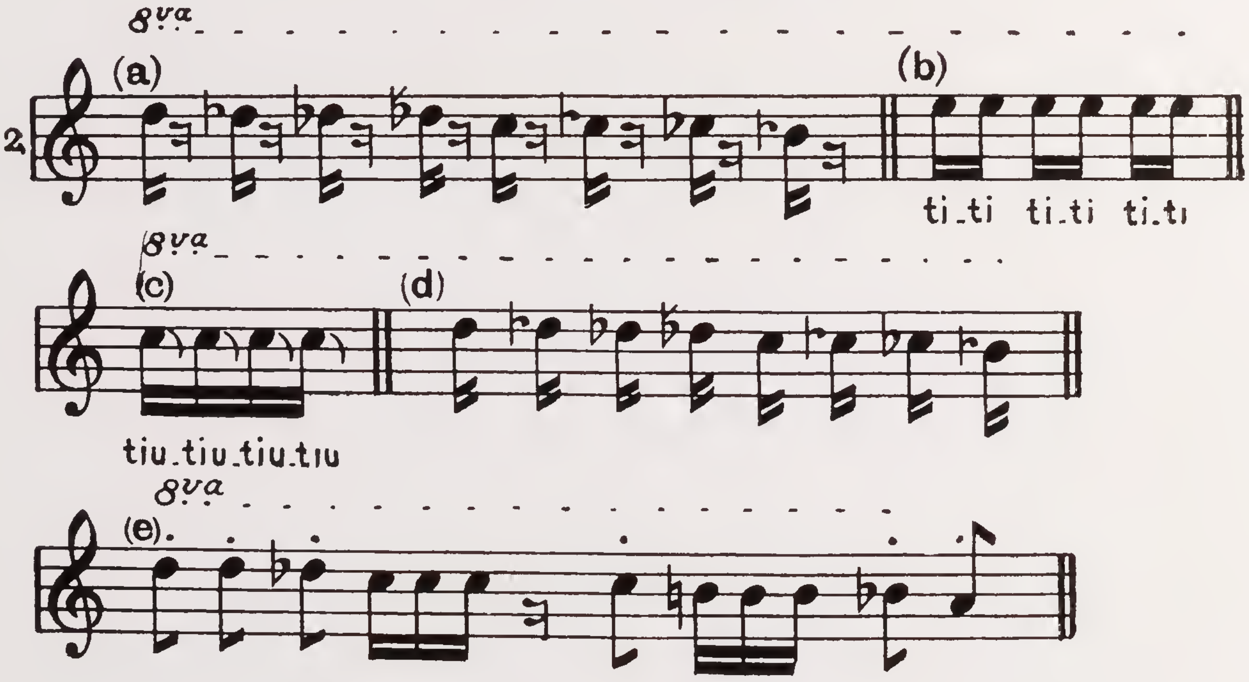
17


18


19


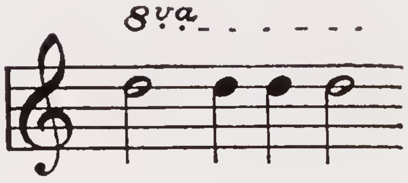
20


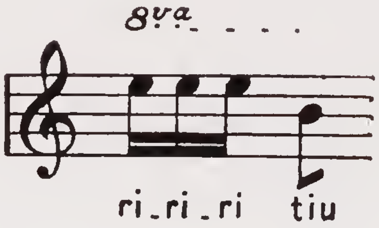
21


22


of from four to five quavers a second. Some of the notes are whistles, some warbles, those of (*c*) have the sound of being slurred.

Whilst this is a song, it is not an art song; that is, it can hardly be said to have a motif. It is never, as far as can be observed, sung twice the same; and whilst many birds may be singing at one time, all are singing different songs, though built up of the same phrases. The cry of (23) is probably that

23


24


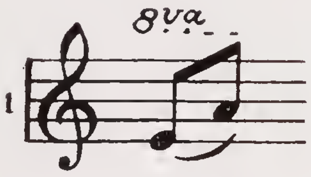
of a young bird; the note is vibrato, at first slow, in semiquavers, then rapidly faster until it throbs like a cricket's chir, and broken as indicated. The notes of (24), heard occasionally following (2), are very like the cry of the parrakeet; they are uttered by themselves at times, lasting half a second. As noted earlier, the white-head almost certainly mimics the robin; it is possible, in view of (14) and (17) that it mimics the fantail, and in view of (24) the parrakeet; its deeper notes, too, are often like those of the bell-bird, with which it at times associates. Again, it possibly is not a case of mimicry at all; but a few of the notes of this voluble companionable bird are like some of the notes of the birds named.

The bush-canary.—Head, breast, and abdomen, yellow; back, yellowish-brown; tail, yellowish-olivaceous. Wing-feathers brown, mostly edged with yellowish-brown. Eye, black. The sexes are alike; the young are much duller in colour. Bill and feet black. Total length $6\frac{3}{4}$ in., of which the tail is $2\frac{3}{4}$ in.

Eggs.—Three or four; uniform reddish-cream, minutely and faintly freckled all over with a darker tint.

Nest.—Similar to that of white-head.

Travers says, as noted above, that the song of the bush-canary is the same as that of the white-head. I have seen the former only once, towards Rimu in Westland, and have not heard its song. I saw the bird as I passed in the coach, and it uttered once the slurred note of (1), whose sound was very like the familiar "sweet" of the cage canary.



Of the twenty-two Maori names recorded for these two birds (WJ, p. 198), those at the head are the ones commonly used.

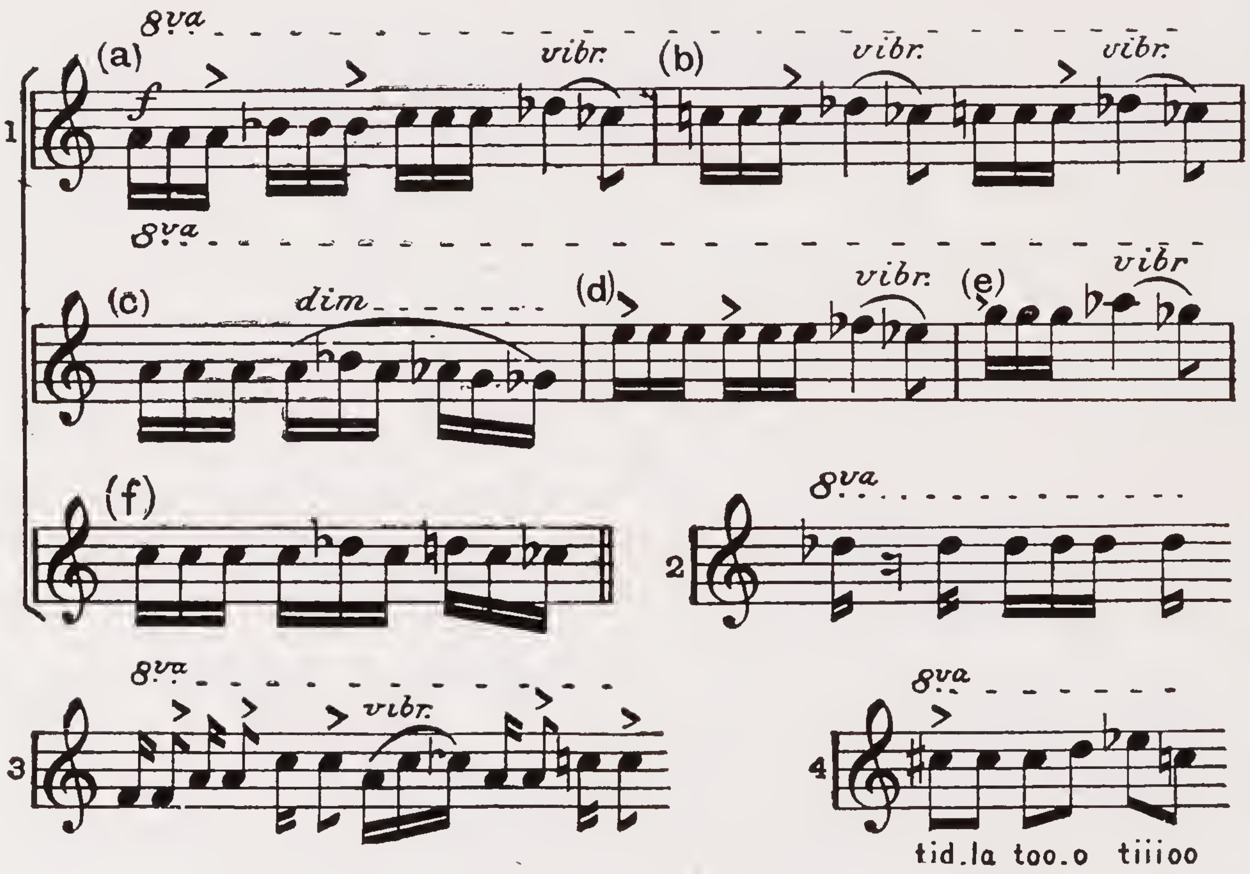
The brown creeper.—Head, back, and tail, reddish-brown; sides of the head and nape dark grey; under surface fawn. Lateral feathers of the tail with a broad brown spot. Eye grey. The sexes are alike; the young are darker below. Some of the birds from the West Coast have a white eyebrow. Bill and feet pale brown. Total length 5¼ in., of which the tail is 2½ in.

Eggs.—Three; white, with small purplish and brown spots, which run together and form a zone round the larger end. Length, almost ¾ in., breadth a little over ½ in.

Nest.—Has rarely been seen; one found by Potts in a black beech (*Fagus*), about seven feet from ground; composed of dry vegetable fibres, fragments of wool, moss, spiderweb, and other soft materials closely felted together. Entrance in side about a third of the way from the top, the aperture being perfectly round with smooth edges.

The brown creeper is, like the white-head, a gregarious bird, moving about in little flocks of from five to twelve. Its song is longer than that of most of the New Zealand birds, though it is not so much sung. The little flocks move among the lower trees, between six and twenty feet above the ground, searching and feeding silently for a time, then suddenly breaking into merry song; and they act in concert; all are silent, or all sing.

The strain is composed of several distinct parts, of which some are interchangeable; (*d*) or (*e*) might take the place of (*b*). Portions only of the strain may be sung, but I have repeatedly heard the whole, (*a*) to (*f*) inclusive. There are several enharmonic notes, but they are unfalteringly sung; the whole song is full and confident, the only traces of hesitancy being in the diminuendo in the almost chromatic runs in (*c*) and (*f*), and this is probably hesitancy only in appearance. There is a strong vibrato on the crotchet of each slur; and the accent which falls on the third note of the triplets in (*a*) and (*b*), is transferred to the first note in (*d*) and (*e*). When singing the full song, the bird moves its head from side to side



as it sings, its tail quivering with each vibrato. The call (2) is uttered with no melody preceding or following.

On one occasion, there being little bird song sounding, I was playing Schubert's ''Fisher Maiden'' to myself, when four creepers perched close beside me singing most energetically; and the louder I whistled, the louder and faster they sang, throats throbbing, tails quivering—so delightful a sight that I was loth to discontinue. When I desisted, they did also, and went about their ordinary business.

A graceful variation is shown in (3), where twos take the place of triplets, as often happens, too, in the song of the warbler. The vibrato is on a curiously slurred note, and the intervals are wider and more distinct. The song is very quickly sung; eight or ten semiquavers a second. The variant (4) was heard near Hokitika; the rest of the songs were heard on Banks Peninsula. It was towards the end of the winter, and I was expecting no song, when I heard the familiar slur, but did not at first recognize the song, as the opening was different, and the notes were vocalized. But when I saw the cheerful little flock of four or five, singing intermittently as they searched the trees, I recognized them at once. One would begin, another would join on the second note, another, or two more on the third, and all were in when the slur came, their time of joining depending apparently on inclination, or preoccupation with other matters. There is surprisingly little variety of notes considering how well developed and finished the song is: the white-head has infinitely more notes, but not so complete a song. It is an art song, too, for the phrases are combined in a definite manner; so definite that the birds are able to sing the same song in concert. There is no doubt that several New Zealand birds, such as the tui, the bell-bird, the brown creeper, the grey warbler, have many motifs; and the fact that they vary them regularly shews that an art-consciousness is being developed in the singers.

The more common Maori names are pipipi and toitoi; the first would appear to be given on account of the characteristic triplets of the song.

Family: Montacillidae

Of this family Britain has seven representatives;—four permanently resident, the pied wagtail, the grey wagtail, the meadow-pipit, and the rock-pipit; and three summer visitors, the white wagtail, the yellow wagtail, and the tree-pipit. New Zealand has two representatives;—the ground-lark, and the Antipodes-lark.

The wagtails appear to have little song, but it is more highly developed among the pipits, especially in the meadow-pipit, or tit-lark, and the tree-pipit. None of these has been acclimatized in New Zealand.

The New Zealand representatives of this family are:—

Anthus novae-zealandiae	the pipit or ground-lark	pihoihoi
Anthus steindachneri	the Antipodes-lark	

The pipit or **ground-lark.**—Above brown, below dull white, with brown spots on the breast. Cheeks white with brown spots; a dark brown band through the eye. Outer tail-feathers white except near the base; the shaft white. Second feather white with an oblique mark of brown on the inner web; the shaft brown. Hind claw equal to the hind toe. Second, third, and fourth primaries sinuated on the outer margin. Eye dark brown. Bill and feet yellowish-brown. Total length 8 in., of which the tail is 3 in.

Eggs.—Four; ground-colour varies from pale stone-grey to a warm creamy grey, and the markings, a darker shade of the ground-colour, pass through every gradation, from a covering of uniform speckles and freckles of greyish-brown to a much darker character, blotched and mottled with purplish-brown of different shades. Length nearly 1 in., breadth a little over three-fifths of an inch.

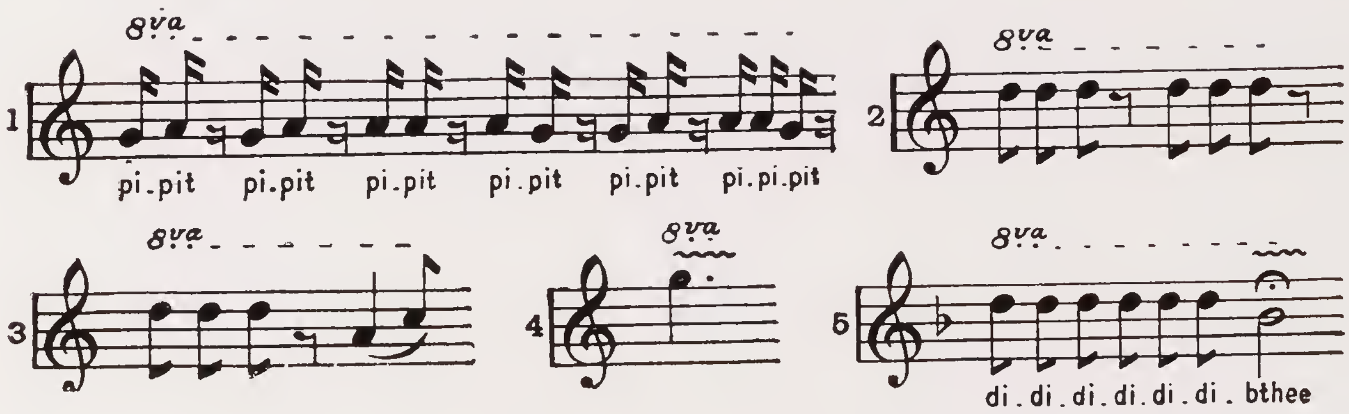
Nest.—On the ground in some natural depression under the shelter of a tussock or clump of rushes; composed of dry grass and other fibrous substances loosely put together.

It frequents open broken country; and whilst at one time its numbers seemed diminishing, owing, as Potts supposed (PO, p. 131), to the rapidity of reproduction of the introduced skylark, it is still plentiful in many parts of the islands.

I have not observed what Buller notes (BN, Vol. 1, p. 65)—"During the breeding season the male bird frequently soars, mounting to a height in the air, and then descends with tremulous wings and outspread tail, uttering a prolonged trilling note, very pleasant to the ear."

"With us in the Antipodes," writes Guthrie-Smith (GB, p. 120), "he takes the place of four British species, the skylark, the wagtail, the flycatcher, and the robin redbreast." His nest is modelled on that of the skylark; as a wagtail he runs along the river rim, or hops among the stones, tail in perpetual motion, rising again and again in short jerky flights; as a flycatcher he hawks by the hour from some eminence, tree-bole, or sharp ridged spur; and as a redbreast he follows the spade, picking out larvae from the overturned soil. "Often when gardening," says the last-named writer (GB, pp. 122-3) "have I had one or two of these cheerful little companions, quite friendly, but never overbold, and always wearing that veil of shyness so peculiarly their own. Never would the ground-lark wear the abstracted, distrait look of an English robin, never would he be guilty of such discourtesy as to sit, as does the redbreast, like a stone, until he darts on his worm, showing that the worm and not your companionship is his real object. My little brown friend would never do that, each of us gives a happiest interpretation to the other's presence......... Mutual courtesy is always observed, on my part no too quick motion or sudden throwing down of tools, on his, an exit lingering and reluctant, for his departure, too, is like him, little runs and pauses that carry him further and further, as if breaking the sorrow to me, and when at last he is no longer there, I realize the old French proverb and know that of the two parties in our affection it is I who have given my heart, whilst the bird only consents to be loved........"

The characteristic call of the pipit is as (1). This call I heard at Kapiti. The notes may be uttered in any order, or there may be but one, two, or three of the *pi-pits* or *pi-pi-pits.* In the upper Godley valley, near the terminal face of the glacier, the call-notes were as (2); the reply being as (4). If the call-notes of (2) were not answered, the call would be varied as in (3), the slurred close sounding like the upward slur of the goldfinch, or like the similar slur of the canary,—a rather plaintive sound. The notes of (5) are very like those of the yellowhammer, in vocalization as well as in pitch. There were no yellowhammers so far up in the mountains, but I heard and saw many of them in the country between Cave and Fairlie some weeks later. The yellowhammer's notes have been likened to the words *little bit of bread and no cheese,* the *ee* of *cheese* being drawn out, in the same way as the *bthee* of the pipit.



Of the half-dozen variants of the Maori name recorded (WJ, p. 199) the most usual is pihoihoi.

The Antipodes-lark.—This is similar in colouring to the pipit, but the lower surface is tinged with fulvous. The wing is rather shorter, the crest of the sternum is much reduced, and the bird flies badly. I have neither seen nor heard this bird.

Family: Alaudidae

To this family belong those fine singers, the skylark, woodlark, and crested lark, three permanent residents in Great Britain, and the shore-lark, a winter visitor. New Zealand has no Maori representative, but the skylark has long been acclimatized, and breeds and sings on hill and plain throughout the islands. Not only on plains and lower hills, but high up in the mountainous Alps, among the sheltering tussock, gemmed with tiny long-stalked daisies and white Maori violets, there it nests and rears its young. I have lain on steep tussock-clad mountain heights within view of Mount Cook, listening to song as voluble and sweet as ever heard by Wordsworth or by Shelley. Nothing but the great Tasman River in its water-veined shingly bed below me, snowy and ice-sheeted mountain peaks around me; not a human habitation visible, but the blue air above me vocal with throbbing song. ''No bird sings with more method,'' says Mr. Main (BC, p. 310), ''there is an overture performed, *vivace crescendo,* while the singer ascends; when at the full height, the song becomes *moderato,* and distinctly divided into short passages, each repeated three or four times over, like a *fantasia,* in the same key and tune. If there be any wind, he rises perpendicularly by bounds, and afterwards poises himself with breast opposed to it. If calm, he ascends in spiral circles; in horizontal circles during the principal part of his song, and zigzagly downwards during the performance of the *finale.* Sometimes, after descending about half way, he ceases to sing, and drops with the velocity of an arrow to the ground. Those acquainted with the song of the skylark, can tell, without looking at them, whether the birds be ascending or stationary in the air, or on their descent; so different is the style of the song in each case. In the first, there is an expression of ardent impatience; in the second, an *andante* composure, in which rests of a bar at a time frequently occur; and in the last, a graduated sinking of the strains, often touching the subdominant before the final close. The time and number of the notes often correspond with the vibration of the wings; and though they sometimes sing while on the ground, as they are seen to do in cages, their whole frame seems to be agitated by their musical efforts."

Yarrell says (YH, Ed. 4, Vol. 1, p. 616) that "........the strains are heard during at least eight months of the year, while in summer the cock begins to sing about two hours before sunrise, and continues at intervals till after sunset. The actual duration of each song is, however, much shorter, even in calm weather which is most favourable to it, than people think........ at the beginning of the season it seldom exceeds two minutes, while in the full flush of spring a quarter of an hour is the utmost limit........"

The woodlark is considered by Bechstein (BC, p. 317) not only to excel all other larks in the beauty of its song, but surpasses all other birds except the chaffinch and the nightingale. "Its tones are flute-like, and the varying phrases of its song have all a melancholy and tender expression. It sings either perched on the top of a tree, or flies upwards almost beyond the reach of sight, and remains poised on its outstretched wings, often warbling for an hour together." "When the wood-lark is near trees," says Mudie (MF, Vol. 2, p. 13), "it varies its pitch and cadence probably more than the skylark. It comes from the ground to the tree in a sort of waving course, singing very low, and giving but a portion of its brief stave. Then it perches and sings in an uniform key, but not full and round. After a little time it wheels upward, more widely and rapidly than the skylark, swelling its song as it ascends, and sometimes rising higher than the ordinary flight of the other, but generally not so high. When it takes the top of its flight, it sends down a volume of song which is inexpressibly sweet, though there is a feeling of desolation in it........" In hot summer nights the woodlark soars and sings as in the day, and its song is then considered, by some, superior to that of the nightingale. It is supposed to be referred to in the second of the following stanzas:—

When shaws been sheene, and shradds full fayre,
  And leaves both large and longe,
Itt is merrye walkyng in the fayre forest
  To heare the small birdes songe.

The woodwale sang, and wold not cease,
  Sitting upon the spraye,
Soe lowde he wakened Robin Hood,
  In the greenwood where he lay.
        ("Robin Hood and Guy of Gisborne," St. 1-2.)

The woodwale has been variously interpreted as woodpecker, thrush, woodlark, redbreast, golden ouzel,—a wide choice. It is also mentioned by Lydgate:

On fressh braunches syngith the wodwale;
        ("On the Mutability of human affairs," St. 4.)

The song of the crested lark is inferior to that of the two preceding birds, and is a combination of the songs of the skylark and linnet (BC, p. 314).

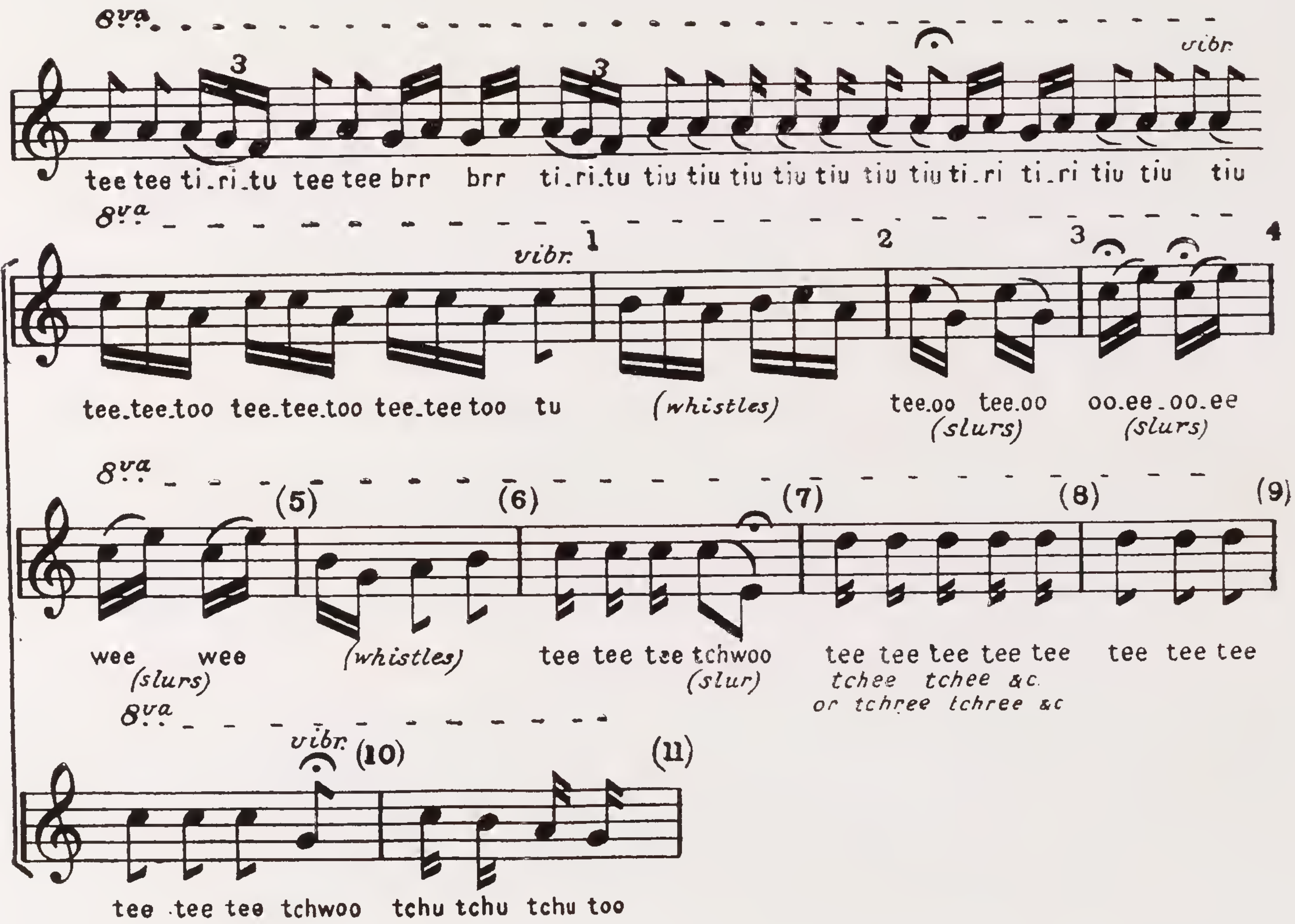
Whilst the compass of the skylark includes a little more than an octave, its usual song is pitched in the upper part of the compass, hovering in trills and slurs about one particular note that appears to form the principal note of the song. This note is varied in many ways; in vocalization, in speed, in openness or restriction of the sound, in being slurred to or slurred from; so that whilst in general the pitch varies little, there is no approach to monotony in the song. As appears to be the case with other birds, different districts have different songs. The fragment of song shewn in (1) was taken at Kapiti Island, other combinations also being heard, but these were the most frequently repeated;—not by any means in this order always, for there appears to be no order in the song; whistles, burrs, slurs, vibratos, alternating as the bird fancies but as no rule dictates. The slurs may drop through a semitone or a tone, the upper note being predominant. Part of the song reminded me, by its vocalization, of

The lark, that tirra-tirra chants,
With, hey! with, hey! the thrush and the jay:—

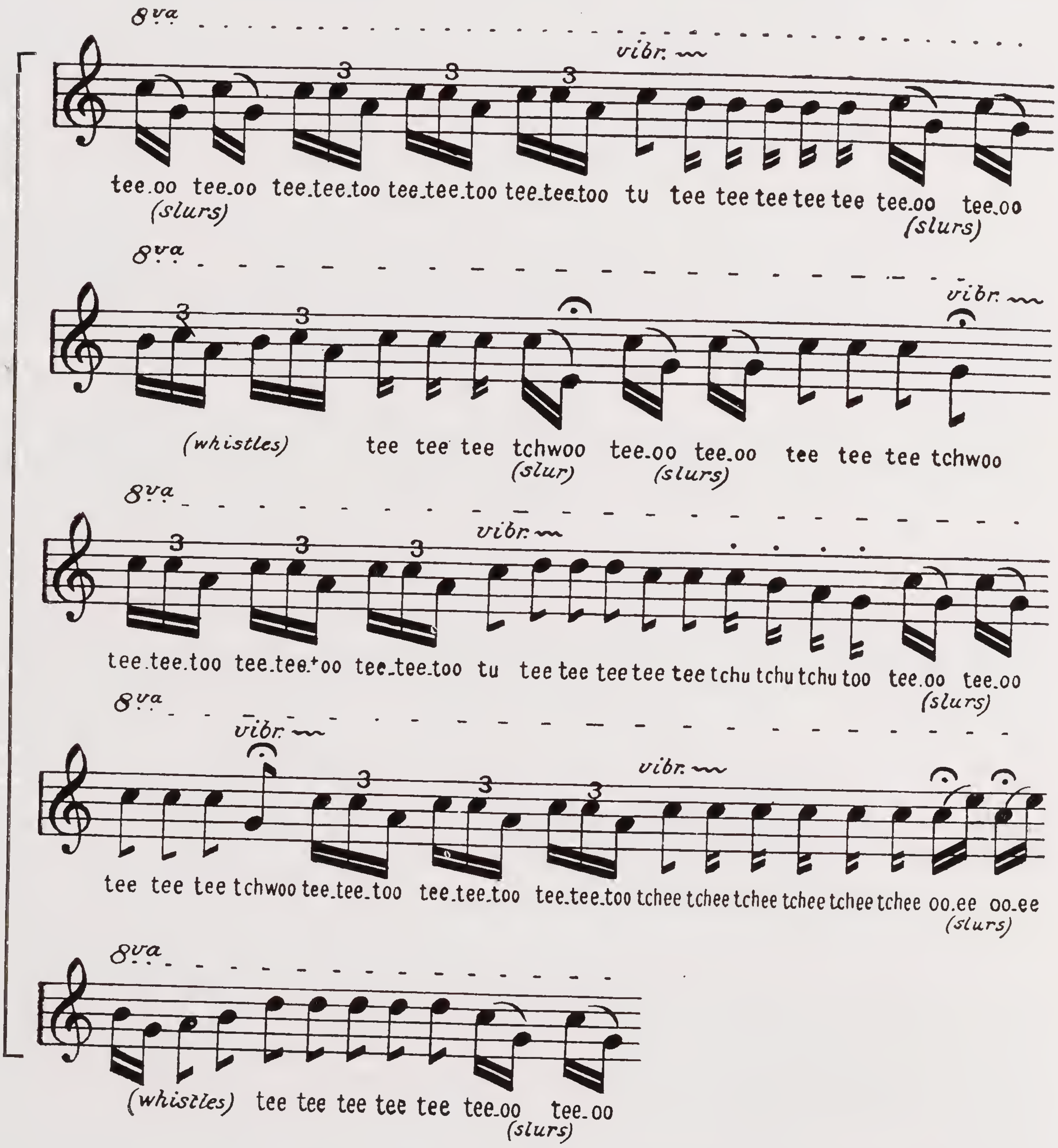
and other of the notes in the above song will be recognized in the words by Du Bartas (RS, *Winter's Tale,* p. 319).

> ‘‘La gentille allouette avec son *tire-lire*
> ‘‘*Tire lire a lire et tire-lirant tire*
> ‘‘Vers la voute due ciel, puis son vol vers ce lieu
> ‘‘Vire et desire dire adieu Dieu,
> ‘‘Adieu Dieu.’’

Songs noted on the Tinakori hills, overlooking Wellington, differed somewhat from the above. They were composed chiefly



of combinations of the eleven phrases set down in (2). The song into which they enter was taken early in August, when spring, though delayed, was well on its way. Several skylarks were singing at the time, but I could detect no difference in the notes, or in the combination of notes, according as the birds were ascending or descending; nor could I detect any relation between the beating of the wings and the number of notes. The tempo is rapid, about ten semiquavers to a second. The bird would mount, singing, circle for a while, poise with wings and tail widely spread, but apparently motionless, still singing, whilst slowly floating downwards; then a turn of the vanes and a swift descent, the song ceasing as the descent began. At times the bird would sing whilst standing on a rock. The notes of 1 were sharply


8va
vibr.
3
tee.oo tee.oo tee.tee.too tee.tee.too tee.tee.too tu tee tee tee tee tee tee.oo tee.oo
(slurs)
(slurs)
8va
vibr.
(whistles) tee tee tee tchwoo tee.oo tee.oo tee tee tee tchwoo
(slur)
(slurs)
8va
vibr.
tee.tee.too tee.tee.too tee.tee.too tu tee tee tee tee tee tchu tchu tchu too tee.oo tee.oo
(slurs)
8va
vibr.
tee tee tee tchwoo tee.tee.too tee.tee.too tee.tee.too tchee tchee tchee tchee tchee tchee oo.ee oo.ee
(slurs)
8va
(whistles) tee tee tee tee tee tee.oo tee.oo
(slurs)

repeated, but not staccato; and it will be noted throughout in the vocalization that if a note starts with an *ee* sound, the change as the note descends the scale is to *oo*; and if it rises, starting with an *oo* sound, as in 4, the change is to *ee*. Some of the slurs were paused on the first note, some on the last; some were unpaused, being quickly and sharply uttered. The vocalization of some of the notes, as 8, constantly varied, ranging from *tee,* through *tchee,* to *tchree.* The same phrase was varied as in 7 and 10; in one case semiquavers, with a final paused slur, in the other, quavers, with a paused vibrato. The notes of the phrases varied in number; those of 9 might be as many as eight. These combinations of notes were set together in all manner of ways to make a song—the song, at this time of the year, lasting perhaps a minute on an average. The fragment of song given on p. 88 would be sung in from 10 to 12 seconds.

Family: Emberizidae

THE BUNTINGS

Of this family, the buntings, Britain has five representatives; —four permanent residents, the reed-bunting, common bunting, yellow bunting, and cirl bunting, and one winter visitor, the snow-bunting.

These are not, apparently, remarkable singers, the reed-bunting being, however, one of the birds that in summer sings by night as well as by day.

The yellow bunting, or yellowhammer, has an indifferent song, but is well known because of the vocalization of that song—*little bit of bread and no cheese,*—a vocalization that in parts of Scotland is interpreted, *deil, deil, deil, take ye,*—referring to the nesters,—whence it is called the devil-bird. The song of the cirl bunting is similar, except that the long final note is omitted.

Both the yellowhammer and the cirl bunting have been acclimatized in New Zealand, the former being now common in many parts of the islands. Many times has the writer lain on the hillsides of Banks Peninsula in the sleepy heat of summer days, hearing the iterated song of the yellowhammer when all other birds were silent. Its song has already been mentioned in connection with the pipit.

Family: Fringillidae

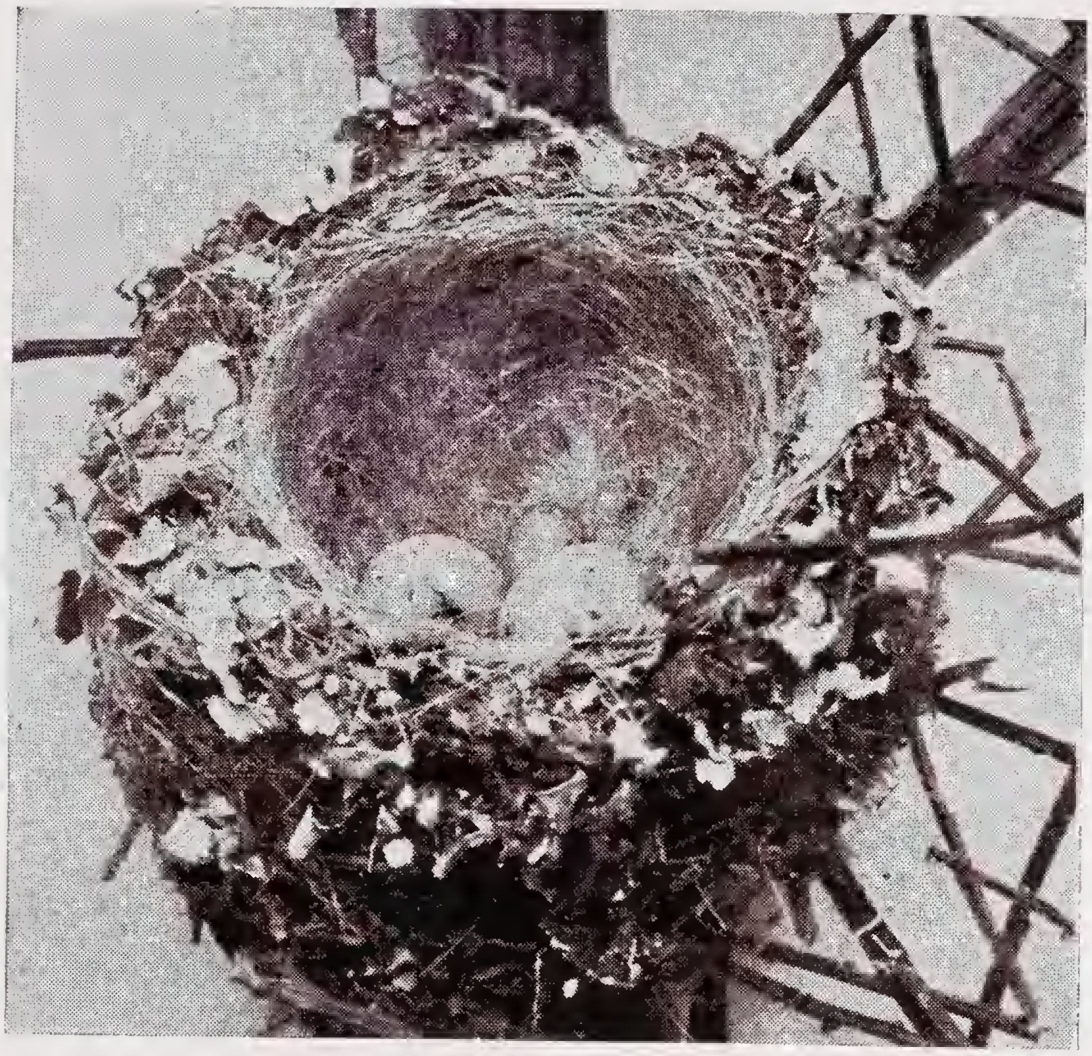
THE FINCHES

Britain has twelve representatives of this family; eight permanent residents,—the chaffinch, tree-sparrow, hawfinch, greenfinch, goldfinch, lesser redpoll, linnet, and bullfinch; and four winter visitors,—the brambling, siskin, mealy redpoll, and twite.

The chaffinch and goldfinch rank fairly high as song birds; yet of the chaffinch, so valued for its song in Germany, Yarrell merely mentions the song, but does not describe it. Both Yarrell and Bolton, too, speak more of the tricks of the goldfinch than of its song. The chaffinch was a favourite of Bechstein, and he describes with some minuteness, in order of preference, twelve of the most prized of its songs. Their chief attraction appears to be not so much in the melody as in the vocalization of the notes, many of them being named after the words supposed to be heard in them. It was the vocalization rather than the melody, too, that attracted the attention of the Maori in the songs of such birds as the tui; and Garstang (GS, p. 39), whilst he makes many interesting and valuable observations on their music, he says, "the song, rather than the music, of birds, is my theme; and song, in birds as in men, is indistinguishable in its earlier stages........from rhythmic language. In other words, poetry, however elemental it may be, lies at the root of all the achievement of avian as of human minstrelsy."

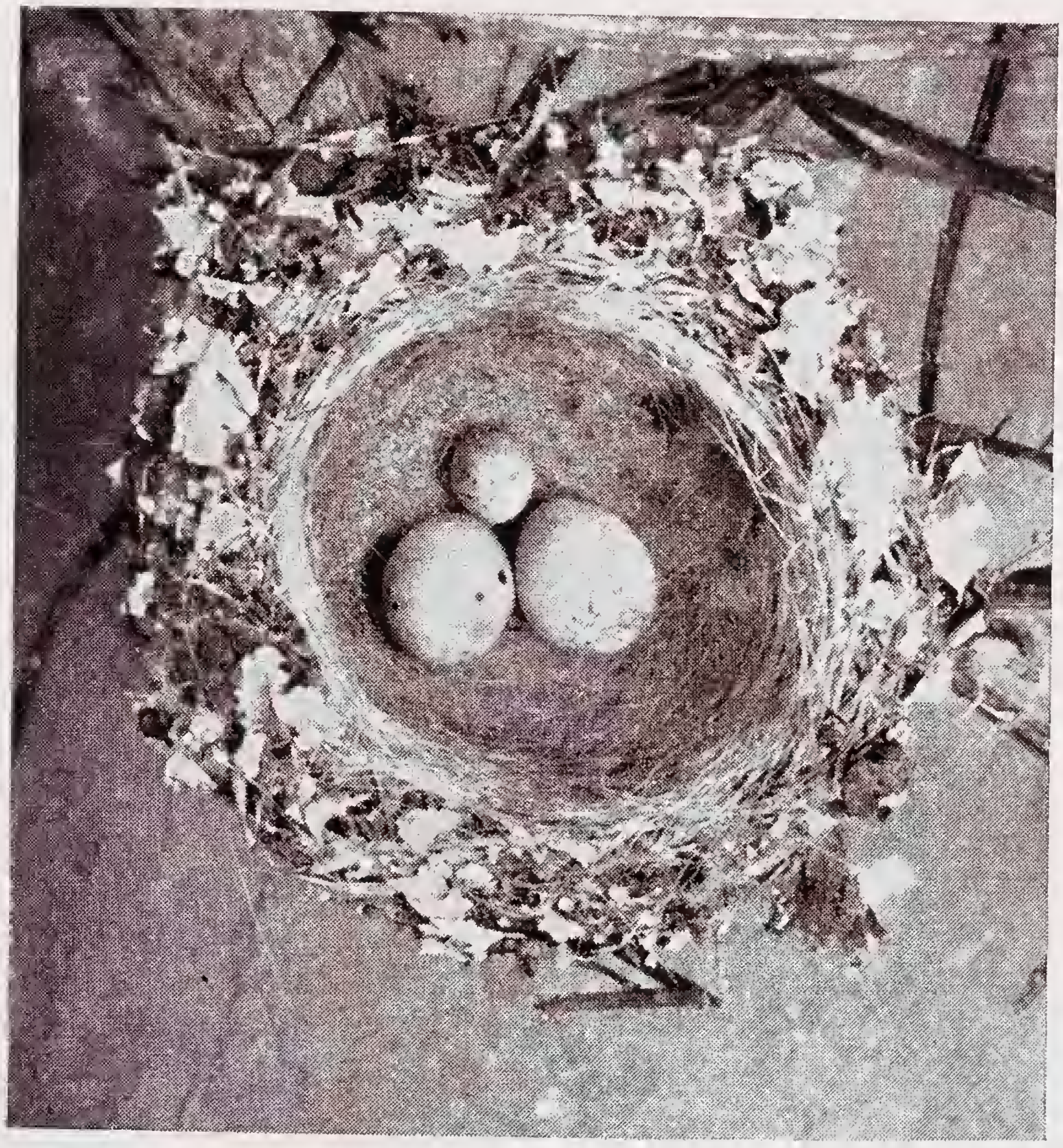
There is no member of this family native to New Zealand; but the chaffinch, goldfinch, greenfinch or green linnet, redpoll, and grey linnet, have been introduced and become thoroughly naturalized. The twite was introduced, but failed to establish itself.

The usual call of the chaffinch, as heard around Wellington, is a repetition of a single note, *chip, chip,* or *chimp, chimp,* as



[H. Hamilton, photo

Chaffinch's nest, Wellington ; one of the eggs unusually small.



[H. Hamilton, photo

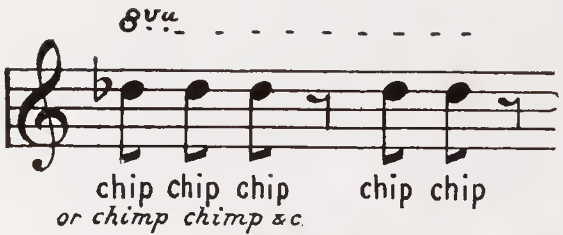
Same nest as preceding, from above.

in (1). Bechstein vocalizes the European call as *fink, fink,*—from which he says the the name of the bird was derived.

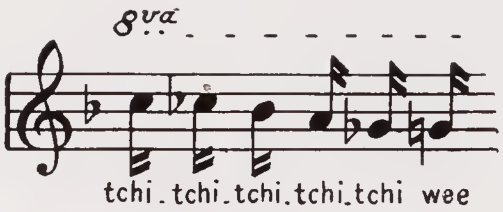
The note is repeated singly, or in twos, threes, or indiscriminate combinations of these at the rate of about five notes a second. The song does not vary very greatly in character.

The most usual song is the phrase in (4); a chromatic drop of varying interval, with a differently vocalized flourish after a short rest, the flourish suggesting some resemblance to one or two of Bechstein's German vocalizations. The song is sprightly and cheerful, occupying a second and a half to two seconds in utterance. In (3) the flourish, not so definite in interval, but as definite in vocalization, comes between two phrases consisting of a repetition of one note, sounding like *tchiu, tchiu.* Garstang (GS, p. 37) gives the British song as *chip, chip, chip; tell, tell, tell; Cherry-erry-erry; Tissy-choo-ee-o!*

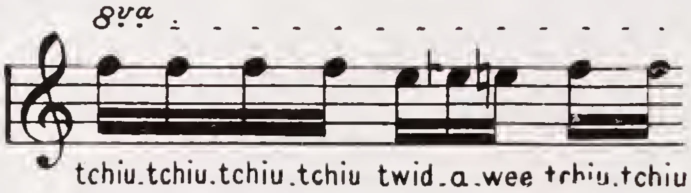
1



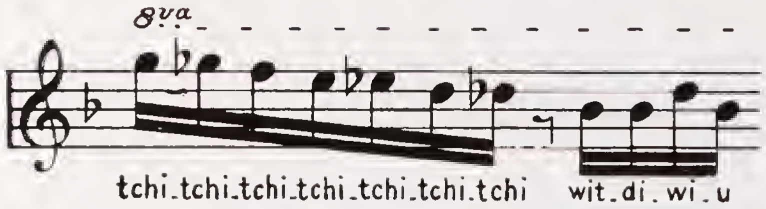
2



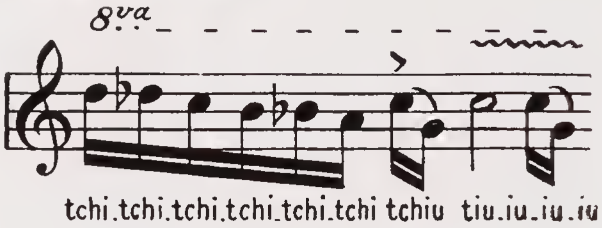
3



4


8va
tchi . tchi . tchi . tchi . tchi . tchi . tchi wit . di . wi . u

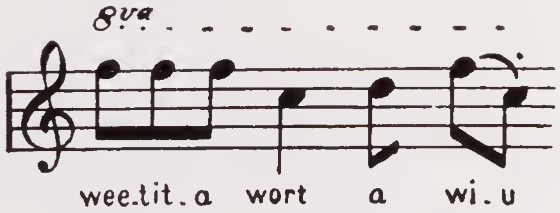
5


8va
tchi . tchi . tchi . tchi . tchi . tchi tchiu tiu . iu . iu . iu

The song of the greenfinch is simply a short, burred, upward-slurred whistle, very like the call of the Maori long-tailed cuckoo. though not nearly equalling it in loudness and shrillness. The songs of the linnet and goldfinch have been heard too seldom to be noted.

Not having heard the other members of this family, I find it difficult to decide if they are songsters or not, so varied are the opinions of authors regarded as authorities. Some of these authors apparently have not heard the song of birds which actually do sing, and some seem unable to recognize a song when they hear it.

Whilst the familiar Philip Sparrow belongs to this family, he is not credited with song. His continuous twittering and chirping is cheerful or aggravating according to the mood of the listener. There is much to be said in his favour; he is extremely sociable, fond of the company of man if also fond of the fruit of man's labour; where man will pioneer, so will the sparrow; he is truly democratic, one might almost say truly British. If impudent, he is courageous; I have seen him fly off with a cicada that he could hardly hold, and the cicada sang a swan-song as he was carried off. I have often listened to the chattering of the sparrows under the eaves—it certainly enlivens a rainy day. It is said that he is capable of learning a song, and there is no doubt he utters musical phrases at times, such as the following:—



The phrase may have been uttered accidentally, but if so the bird was able to take advantage of accident, and shewed appreciation of the phrase by repeating it.

In bird-life there are many curiosities, many puzzles. Two sparrows, living somewhere near the Ashburton railway station, selected, according to the local paper, the ventilator of a guard's van as a nesting-place. There they built, laid their eggs, and hatched their young. The van went with the Mt. Somers train to Springburn, thirty miles distant, every evening, returning every morning. Apparently the birds, or one of them, must have travelled with the train during incubation. The young birds were noisy on the journey to Ashburton each morning, but quiet during the up journey, so that it would seem they were fed in the evening before leaving, and had then to wait until their return for their next meal. I have a kindly feeling for the guard of that train.

Family: Sturnidae

THE STARLING

The starling has been introduced to New Zealand, and is firmly established throughout the islands, ranging from the high mountain lands to the cities.

"Its song is as imitative as that of the vaunted mocking-bird," says Yarrell (YH, Ed. 4, Vol. 2, p. 229), "........starlings consort with many kinds of birds, learn their notes, and frequently mingle them in their own strain." "It learns," says Bechstein, (BC, p. 329), "........to repeat words, whistle airs (a power shared by the females also), and to imitate the voices of men and animals, and the song of birds." It has, besides, says this writer, a peculiar harp-like song of its own. I have not heard it sing with a full voice: that is, the sound always seemed forced, more as if the bird were "recording" than singing; or as if perpetually uttering its whisper-song. It is able to repeat the cry of the quail exactly; but as there have been no quail within considerable distances of places where I have heard this, I am almost sure that it is not imitation, but that these are among the natural notes of the bird.

One January I was at Kapiti, in Cook Strait, and lay on a tree-dotted grassy slope near the sea. It was evening, and I had noted a bell-bird's whisper song, when I looked up to the sunset sky towards the south end of the island, an islet, Toko, lying before me, distant about two miles. The sky above the islet was a blending of cumulo-stratus, touched with palest purple, yellow, and pink,—so pale that they were the shadows rather than the lights of those hues. The suffused clouds had shape, but no sharp definiteness. The hills of the mainland beyond were hazy-blue, the stretch of sea below me opalescent, and lightly rippled. My eye was drawn to a moving cloud above the islet; a cloud that formed, and vanished, and formed, like a cloud in the blue deeps of a summer sky,—only with swifter transitions. It was a flight of starlings, many hundreds in number; and the cloud formed by the crowded birds appeared and disappeared according as they presented an edge or full body. The unanimity of movement must have been perfect to cause the rhythmical melting and reappearing of the cloud. The birds gather from many quarters on the mainland, and every evening fly in thousands to Toko, passing the night there and leaving again, flock by flock, in the morning. This they do, too, though in lesser numbers, during the breeding season. A similar habit is observed in Britain, where thousands of birds repair to some common nightly haunt, but I have seen no note of such haunt being divided by the sea from their daily resort. Toko is over two miles from the mainland, and is uninhabited, and unoccupied. There is another night-haunt on the mainland about four miles from the islet, in a plantation of blue-gums close to Paraparaumu, and between it and the sea; and at sunset there is a great clamour of twittering before the birds settle down for the night. Some have suggested that these birds do not remain in this place for the night, but are noisily congregating before the flight across to the islet; but I have not learned definitely if this is so or not. Two or three years after this observation the starlings ceased their flights to Toko; for what reason is not known.

The New Zealand members of this family are :—

Heteralocha acutirostris		huia
Creadion carunculatus	the saddle-back	tieke

The huia.—Greenish-black, with a band of white at the end of the tail. Bill white; wattles orange. Eye dark brown. The birds were unique in the bills of the two sexes differing markedly;—that of the male, 2½ in. along the ridge, being stout, and comparatively straight, that of the female, 4 inches, slender and down-curved. In feeding, the male chiselled the affected wood for grubs, the female probed for them. Total length, 18½ in., of which the tail is 7½ in.

Eggs.—Greyish-white, with a few spots of purple and brown. Length, a little over 1¾ in.

Warblers [illegible]

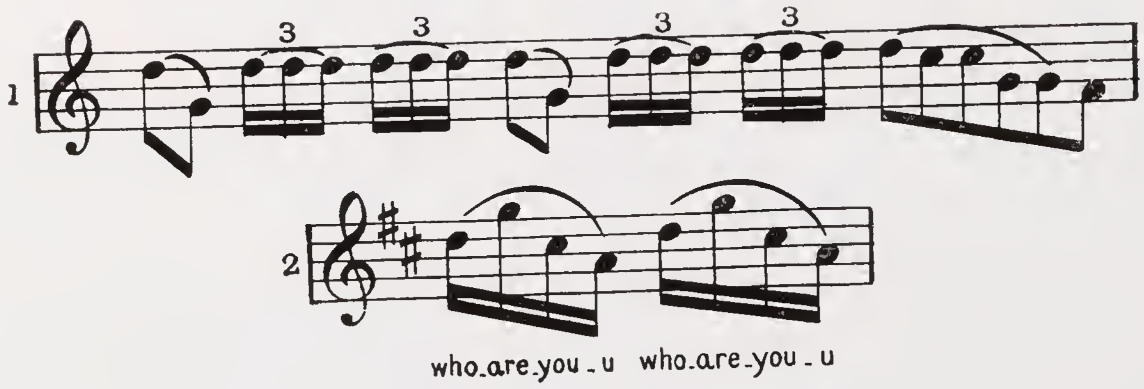
[illegible] 46 – 48

[illegible] 48 – 60

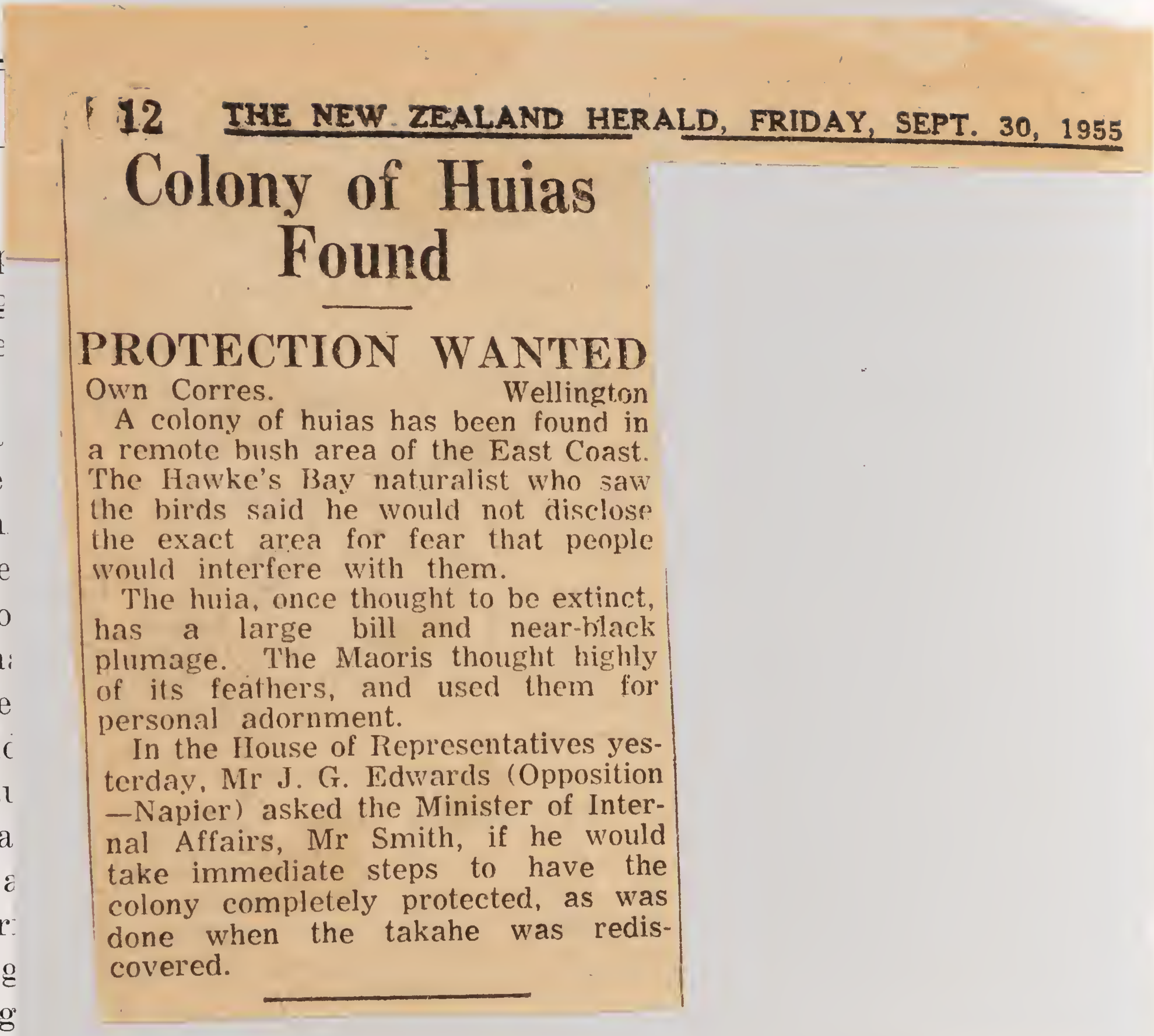
[illegible]

naving
nutaka
en re-
s been
within
e com-
slands,
one or
of the
rought
plained
seemed
part of
bers, as
ns, and

y a call,
36, as a
ound of
used by
the Maori was made up of the notes uttered by the bird whilst feeding, or when searching for food; a quick very softly uttered call consisting of triplets and slurs (1). The cry of distress was given me by Mr. F. Wilson, who had spent many years in the bush, as (2).



The cry, legato, and not slurred, was repeated many times, the vocalization sounding like the words *Who-are-you-u*, the cry from which the bird evidently received its name huia. Buller describes his expeditions in search of specimens of this



12 THE NEW ZEALAND HERALD, FRIDAY, SEPT. 30, 1955

Colony of Huias Found

PROTECTION WANTED

Own Corres. Wellington

A colony of huias has been found in a remote bush area of the East Coast. The Hawke's Bay naturalist who saw the birds said he would not disclose the exact area for fear that people would interfere with them.

The huia, once thought to be extinct, has a large bill and near-black plumage. The Maoris thought highly of its feathers, and used them for personal adornment.

In the House of Representatives yesterday, Mr J. G. Edwards (Opposition—Napier) asked the Minister of Internal Affairs, Mr Smith, if he would take immediate steps to have the colony completely protected, as was done when the takahe was rediscovered.

---

in
app
edg
bee
of
ma
the
Th
bre
tho
I ha
the
and
hau
pla
it a
ter
sug
nig
the
Two or three years after this observation the starlings ceased their flights to Toko; for what reason is not known.

The New Zealand members of this family are :—

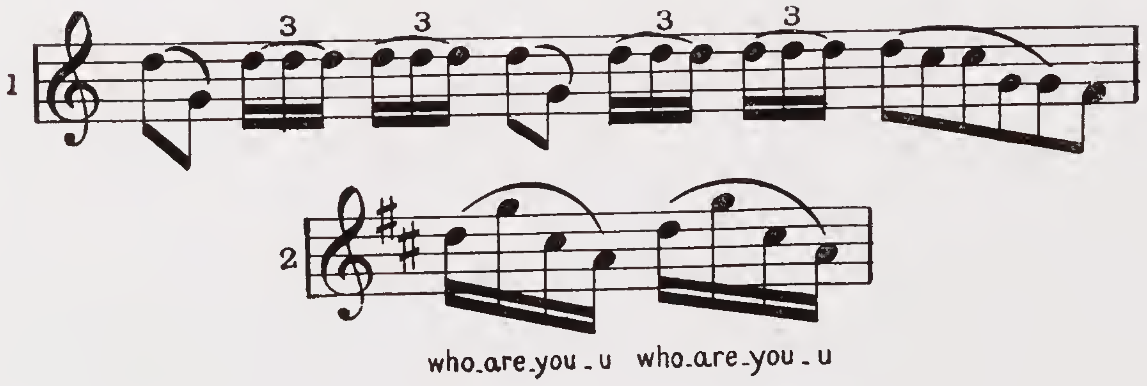
Heteralocha acutirostris		huia
Creadion carunculatus	the saddle-back	tieke

The huia.—Greenish-black, with a band of white at the end of the tail. Bill white; wattles orange. Eye dark brown. The birds were unique in the bills of the two sexes differing markedly;—that of the male, 2½ in. along the ridge, being stout, and comparatively straight, that of the female, 4 inches, slender and down-curved. In feeding, the male chiselled the affected wood for grubs, the female probed for them. Total length, 18½ in., of which the tail is 7½ in.

Eggs.—Greyish-white, with a few spots of purple and brown. Length, a little over 1¾ in.

Habits.—Their range was very restricted, no birds having been obtained away from the Ruahine, Tararua, and Rimutaka mountains, in the Wellington district. They have been reported from other places, but no definite information has been obtained. They are believed to have become extinct within the last 15 or 20 years. There are several birds that were comparatively rare on the first European occupation of the islands, and their decline in numbers, and the extinction of one or two, are not altogether due to the new occupation of the country and the marked change in conditions thus brought about; they were already declining for some unexplained natural reason. Moreover, the other Maori birds that seemed doomed to extinction on the destruction of so great part of their haunts, are now in many cases increasing in numbers, as if they have become acclimatized to the new conditions, and will in future be able to hold their own.

The huia was, when within hearing, easily attracted by a call, described by Dieffenbach, when writing to Gould in 1836, as a "shrill and long continued whistle resembling the sound of the native name........." In later years the decoy call used by the Maori was made up of the notes uttered by the bird whilst feeding, or when searching for food; a quick very softly uttered call consisting of triplets and slurs (1). The cry of distress was given me by Mr. F. Wilson, who had spent many years in the bush, as (2).



The cry, legato, and not slurred, was repeated many times, the vocalization sounding like the words *Who-are-you-u,* the cry from which the bird evidently received its name huia. Buller describes his expeditions in search of specimens of this rare bird, writing of one, in 1883,—"Rahui continued his call—a loud clear whistle—not much like the ordinary call of the bird, being louder and more shrill. In a few seconds, without sound or warning of any kind, a huia came bounding along, almost tumbling, through the close foliage of the pukapuka, and presented himself to view at such close range that it was impossible to fire. This gave me an opportunity of watching this beautiful bird and marking his noble bearing, if I may so express it, before I shot him." A strange instinct; to destroy what he admired: evidently his admiration was for the specimen; not for the bird. He continues "........My next shot was at an adult male huia who came dashing up with reckless impetuosity, from the wooded gully. Being anxious to obtain a perfect specimen, I risked a long shot and only wounded my bird. Down he went to the ground like an arrow, with a sharp flute-like note of surprise or pain, and then darted off kangaroo fashion, covering the ground with wonderful rapidity, and disappeared in the tangle........a pair of huias, without uttering a sound, appeared in a tree overhead, and as they were caressing each other with their beautiful bills, a charge of No. 6 brought them to the ground together. The incident was rather touching, and I felt almost glad that the shot was not mine, although by no means loth to appropriate the two fine specimens. Before we reached our next camping ground, at the foot of Poroporo, we had bagged another bird, who........ came up quite fearlessly to her doom." More were shot, and so the record of barbarity goes on; the man deplores the rarity of the birds, and slaughters them mercilessly; one can only believe that their rarity is deplored solely because of the consequent leanness of his bag.

The appearance of the huia will be well known to all stamp collectors; for it is represented in the beautiful series of pictorial postage stamps issued by the New Zealand Government in 1898, and first brought into use on the 5th April of that year. On the threepenny stamp, light brown, designed by W. R. Bock, of Wellington, a pair of huia appears. The sixpenny stamp, sap-green, designed by E. Howard, of Melbourne, shews one of New Zealand's flightless birds, the kiwi; and the shilling stamp, orange-red, also designed by W. R. Bock, shows a pair of kaka, the noisy brown parrot. The rest of the stamps

Kiwi

E. Phillips Turner liberated 5 Kiwi from Jackson Bay on 12 Oct. 1912. On 26 May 1915 Mr Bennett advised that 1 pair brown kiwi had been received + liberated; these were from Hanmer, through the C. L. Ranger there.

I don't include Kiwi
not a Songster

Ruahine range, the home of our favourite bird. We ask you, O Governor! to restrain the pakehas from shooting it, that when your boy grows up he may see the beautiful bird which bears his name."—The courteous Maori did not say "whose name he bears," though no one but the Maori themselves may have noticed the difference. Protection to the bird was granted on 25th February, 1892; but it failed to ward off its extinction. The Earl also urged the reservation of Little rare bird, writing of one, in 1883,—"Rahui continued his call—a loud clear whistle—not much like the ordinary call of the bird, being louder and more shrill. In a few seconds, without sound or warning of any kind, a huia came bounding along, almost tumbling, through the close foliage of the pukapuka, and presented himself to view at such close range that it was impossible to fire. This gave me an opportunity of watching this beautiful bird and marking his noble bearing, if I may so express it, before I shot him." A strange instinct; to destroy what he admired: evidently his admiration was for the specimen; not for the bird. He continues "........My next shot was at an adult male huia who came dashing up with reckless impetuosity, from the wooded gully. Being anxious to obtain a perfect specimen, I risked a long shot and only wounded my bird. Down he went to the ground like an arrow, with a sharp flute-like note of surprise or pain, and then darted off kangaroo fashion, covering the ground with wonderful rapidity, and disappeared in the tangle........a pair of huias, without uttering a sound, appeared in a tree overhead, and as they were caressing each other with their beautiful bills, a charge of No. 6 brought them to the ground together. The incident was rather touching, and I felt almost glad that the shot was not mine, although by no means loth to appropriate the two fine specimens. Before we reached our next camping ground, at the foot of Poroporo, we had bagged another bird, who........ came up quite fearlessly to her doom." More were shot, and so the record of barbarity goes on; the man deplores the rarity of the birds, and slaughters them mercilessly; one can only believe that their rarity is deplored solely because of the consequent leanness of his bag.

The appearance of the huia will be well known to all stamp collectors; for it is represented in the beautiful series of pictorial postage stamps issued by the New Zealand Government in 1898, and first brought into use on the 5th April of that year. On the threepenny stamp, light brown, designed by W. R. Bock, of Wellington, a pair of huia appears. The sixpenny stamp, sap-green, designed by E. Howard, of Melbourne, shews one of New Zealand's flightless birds, the kiwi; and the shilling stamp, orange-red, also designed by W. R. Bock, shows a pair of kaka, the noisy brown parrot. The rest of the stamps in the series show characteristic views of lake, and mountain, and thermal phenomena.

The bird was occasionally kept in a cage by the Maori, and it appeared soon to become reconciled to captivity. The white-tipped tail-feathers were greatly valued as ornaments, being worn as a plume by chiefs of high rank. A war-plume of twelve huia-feathers was known as a mare-reko. The skin of the bird, with the tail attached, but the legs and wings removed, was dried by the Maori by being pressed between two sheets of totara bark, tied round with New Zealand flax, care being taken not to soil the tail-feathers. When dry the skin was scented with one of the many scents prepared by the Maori from native plants, and worn as an ornament, hung round the neck or in the ear. The dried heads and bills of this and other rare birds were also attached as ornaments to various kinds of head-gear. If a newly married man dreamt of seeing human skulls decorated with huia feathers, it was regarded as an indication that his wife had conceived a daughter; kotuku (heron) feathers indicated the conception of a son.

It should not be forgotten that the Earl of Onslow, Governor of New Zealand from 1889 to 1892, urged the preservation of the huia, bell-bird, stitch-bird, robin, and other then rare birds. He had named his son Huia; and when he at Otaki on 12th September, 1891, presented his son to the assembled tribes, one of the Maori chiefs said, "There, yonder, is the snow-clad Ruahine range, the home of our favourite bird. We ask you, O Governor! to restrain the pakehas from shooting it, that when your boy grows up he may see the beautiful bird which bears his name."—The courteous Maori did not say "whose name he bears," though no one but the Maori themselves may have noticed the difference. Protection to the bird was granted on 25th February, 1892; but it failed to ward off its extinction. The Earl also urged the reservation of Little

Barrier Island as a sanctuary. This was done. Resolution Island, on the south-west coast of the South Island, was gazetted a sanctuary for birds on 6th August, 1891; Little Barrier Island, towards the north of the North Island, on 26th September, 1895; Kapiti Island, off the North Island in Cook Strait, on 31st May, 1900; Motu Ngaro Island, in the Marlborough Sounds, on 24th October, 1901. Other reservations have been made; and the need that urged me to record the songs,—the fear that these might be altogether lost with the birds,—has almost passed away. The songs may still be heard by those who love the birds and their sylvan homes. More, the sanctuaries are becoming nurseries from which the mainland receives voluntary immigrants, so that there is a hope that the chief birds will again increase in numbers.

The saddle-back.—Black, with the back and wing-coverts deep chestnut. Wattle generally orange, but variable between red and yellow. Eye dark brown. The sexes are alike, but the young is brown, with the lower part of the back dull chestnut. Bill and legs black. Total length 10 in., of which the tail is 3½ in.

Eggs.—Three; white, sprinkled with faint purplish marks, brownish-purple towards the broad end, almost forming a large blotch. Length, a little over an inch; breadth almost an inch.

Nest.—Potts writes (PO, pp. 201-2) :—"For its nesting place a hollow or decayed tree is selected, sometimes the top of a tree-fern is preferred. The first nest we know of was found by an old friend in a hole about four feet from the ground in a huge white pine, kahikatea (*Podocarpus dacrydioides*), close to the bank of the Ahaura river; it contained three eggs hard set. We found a nest in a dead tree-fern not far from Lake Mapourika, Westland. This was of slight construction, built principally of fern-root, deftly woven into rather a deep-shaped nest with thin walls; as the structure just filled the hollow top of the tree-fern, thick walls were unnecessary. Another nest, in a small-sized decayed tree in the Okarito bush, was in a hole not more than three feet from the ground; it was roughly constructed, principally of fibres and midribs of decayed leaves of the kiekie (*Freycinetia Banksii*), with a few tufts of moss, leaves of rimu, lined with moss and down of tree-ferns (*Cyathea*); it measured across from outside to outside of wall 12 in. 6 lines, cavity 3 in. diameter, depth of cavity 2 in.''

Habits.—Potts writes further (ib.):—''The saddle-back, which a few years since was commonly met with in the more thickly wooded portions of Banks Peninsula, is now of rare occurrence there. The extensive area of growing timber at the Little Bush River (? Little River Bush) will probably be its last refuge in that part of the country, so rapidly is the Peninsula becoming disforested. Although we have met with, and have known of the nest of this striking looking bird in the more open parts of the forest, yet it seeks and loves the shady covert of the densest bush, where decaying tree and damp mosses conceal an insect food supply. It does not appear to be strong in the wing; we have never seen it attempt a lengthened flight, yet its movements are notably prompt, rapid, and decided. It usually announces its sudden approach by a shrill note unlike that of any other bird we know; it sounds like '*chee-per-per, chee-per-per,*' repeated several times in quick succession. No sooner is this call-note heard than the bird emerges from its leafy screen and bounds before the spec-

Song made by the tieke or
saddleback

Te eki e ke kai wha no taua
where we go and have our tucker
Ki whea kai ai kai ai ti he rua
you eat you eat you finish

W.H. 27

Barrier Island as a sanctuary. This was done. Resolution Island, on the south-west coast of the South Island, was gazetted a sanctuary for birds on 6th August, 1891; Little Barrier Island, towards the north of the North Island, on 26th September, 1895; Kapiti Island, off the North Island in Cook Strait, on 31st May, 1900; Motu Ngaro Island, in the Marlborough Sounds, on 24th October, 1901. Other reservations have been made; and the need that urged me to record the songs,—the fear that these might be altogether lost with the birds,—has almost passed away. The songs may still be heard by those who love the birds and their sylvan homes. More, the sanctuaries are becoming nurseries from which the mainland receives voluntary immigrants, so that there is a hope that the chief birds will again increase in numbers.

The saddle-back.—Black, with the back and wing-coverts deep chestnut. Wattle generally orange, but variable between red and yellow. Eye dark brown. The sexes are alike, but the young is brown, with the lower part of the back dull chestnut. Bill and legs black. Total length 10 in., of which the tail is 3½ in.

Eggs.—Three; white, sprinkled with faint purplish marks, brownish-purple towards the broad end, almost forming a large blotch. Length, a little over an inch; breadth almost an inch.

Nest.—Potts writes (PO, pp. 201-2) :—"For its nesting place a hollow or decayed tree is selected, sometimes the top of a tree-fern is preferred. The first nest we know of was found by an old friend in a hole about four feet from the ground in a huge white pine, kahikatea (*Podocarpus dacrydioides*), close to the bank of the Ahaura river; it contained three eggs hard set. We found a nest in a dead tree-fern not far from Lake Mapourika, Westland. This was of slight construction, built principally of fern-root, deftly woven into rather a deep-shaped nest with thin walls; as the structure just filled the hollow top of the tree-fern, thick walls were unnecessary. Another nest, in a small-sized decayed tree in the Okarito bush, was in a hole not more than three feet from the ground; it was roughly constructed, principally of fibres and midribs of decayed leaves of the kiekie (*Freycinetia Banksii*), with a few tufts of moss, leaves of rimu, lined with moss and down of tree-ferns (*Cyathea*); it measured across from outside to outside of wall 12 in. 6 lines, cavity 3 in. diameter, depth of cavity 2 in.''

Habits.—Potts writes further (ib.) :—''The saddle-back, which a few years since was commonly met with in the more thickly wooded portions of Banks Peninsula, is now of rare occurrence there. The extensive area of growing timber at the Little Bush River (? Little River Bush) will probably be its last refuge in that part of the country, so rapidly is the Peninsula becoming disforested. Although we have met with, and have known of the nest of this striking looking bird in the more open parts of the forest, yet it seeks and loves the shady covert of the densest bush, where decaying tree and damp mosses conceal an insect food supply. It does not appear to be strong in the wing; we have never seen it attempt a lengthened flight, yet its movements are notably prompt, rapid, and decided. It usually announces its sudden approach by a shrill note unlike that of any other bird we know; it sounds like '*chee-per-per, chee-per-per,*' repeated several times in quick succession. No sooner is this call-note heard than the bird emerges from its leafy screen and bounds before the spectator as suddenly as harlequin in a pantomime. From these abrupt movements, or flying leaps, thus shrilly accompanied, it seems to perform a *rôle* of its own that appears almost startling amidst the umbrageous serenity of the forest. Let the eye follow its motions, that are so quickly changed, and watch the tieke perched for a few moments on the lichen-mottled bole of some fallen tree, a favourite position—its glossy black plumage is relieved from sameness by the quaint saddle-mark of deep ferruginous that crosses its back and wings, the red carbuncles add much to the sprightliness of its air; the observer will probably notice that its attitude is peculiar, or, in colonial phrase, ' it had a queer set on it.' The head and tail are kept rather elevated, the feathers of the tail take a gently sweeping curve, the bird looks as though prepared to leap, one more glance and it is away climbing some moss-clothed trunk, or picking its food from beneath the flakes and ragged strips of bark that hang from the brown-stemmed fuchsia tree. It must be an early breeder. On the Teremakau we have seen the young, almost of adult size, in the first week of December.''

Of the five Maori names recorded (WJ, p. 198) the one most commonly used is tieke.

In Maori lore the bird was supposed to be a guardian of the ancient treasures of the Maori; and if the name can be construed to mean ''a guardian,'' it might rather be on this account than because it accompanies flocks of white-heads as before mentioned. But the name tieke was probably taken from the call of the bird; for there is an old song used for hauling a canoe over difficult places, which begins:

[One Voice.]	[All.]
The kiwi cries	Kiwi (a short sharp pull)
The moho cries	Moho
The tieke cries	Tieke
	Fork it out, fork it out (A long sustained pull)

If a war-party should hear the cry of a tieke to the right of their path, it would be counted an omen of victory; but if to the left an omen of evil. The bird appears in the story of Maui snaring the sun, which exploit is related under the crow.

It is mentioned in two proverbs: *Ka mahi koe te whare o te tieke* (GK, p. 37), ''You are building a house for the tieke (saddle-back),''—said to one making a mat of dry kiekie leaves, because the tieke often built its nest in a tuft of kiekie; and *Me te mea i houhoua e te tieke* (GK, p. 71), ''Full of holes, as a rotten piece of wood pecked full of holes by the tieke.''

Family: Corvidae

THE CROWS

There is but one representative of this family, the jay, a permanent resident in Britain, that may be said to sing, and that only occasionally.

New Zealand has two representatives of the family; the blue-wattled crow, peculiar to the North Island, and the orange-wattled crow, peculiar to the South.

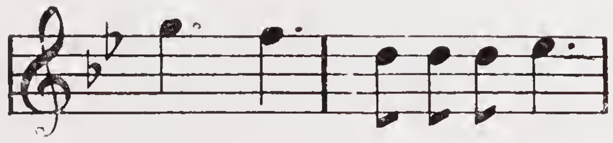
Glaucopis wilsoni	the North Island or blue-wattled crow	kokako
Glaucopis cinerea	the South Island or yellow-wattled crow	kokako

The North Island crow—Dark bluish-grey with a black band from the nostrils to the eye. Tail olivaceous black. Wattle entirely blue. Eye dark brown. Bill and legs black. Total length $17\frac{1}{4}$ in., of which the tail is $7\frac{3}{4}$ in.

Egg.—Pale stone-grey, spotted with purplish-grey. Length nearly $1\frac{1}{2}$ in.

Habits.—''The blue-wattled bird,'' writes Potts (PO, p. 197), ''seems very near akin to our southern bird in its familiar ways and habits; in the woods at Oropi, near Tauranga, the writer, some years since, had very good opportunities of seeing it quite at home picking and feeding in the low-growing bushes and shrubs that form the undergrowth amongst the lofty forest trees. It is gregarious, assembling in small companies, the members of which are restless, shifting from shrub to shrub, hopping and climbing from spray and bough as they make their way, progressive through the tangled foliage. With caution they allow a close approach, affording frequent views of their dark yet handsome plumage, the deep velvety head feathers set off the blue wattles to advantage; their quaint movements are peculiarly their own; the music of their soft flute-toned notes is particularly delightful to listen to, it is one of the sweetest charms of the wild forest life.''

I have neither seen nor heard this bird,* but from Mr. F. Wilson already mentioned, I have obtained one of the phrases of the flute-notes, as follows: the pitch may not be correct, but the intervals will probably be so. The notes were prolonged and deliberate, though here, again, they may not be exact.



The South Island crow.—Dark bluish-grey, with a black band from the nostrils to the eye. Tail blackish at the tip. Wattle orange with a blue base. The sexes are alike, but the young are browner in colour, and have smaller wattles. Eye dark brown. Bill and legs black. Total length 16 in., of which the tail is 7 in.

Eggs.—Two; warm stone-colour, with purplish and brown spots. Length 1½ in.; breadth 1 in. Potts says they resemble the eggs of some species of tern in colour and marking.

Nest.—See remarks following.

Habits.—Potts writes (PO, p. 195, *et seq.*)—"........Under favourable conditions the kokako may be found on the outskirts of the bush, in the open glades that fringe some of the larger rivers. The gentle, confident manner, the rich, flute-like notes, the peculiar mode of progression even, cannot fail to draw the attention of the observer, albeit he may not be imbued with enthusiasm for gazing on the life that stirs in our woods. The ardent naturalist, who has the chance of knowing this bird, must learn to love it.

"In the earlier spring months we have watched it out in the open glade, cropping various species of *Graminiae, Gnaphalia, Polypodia*; often has its soft note attracted us to the bush where it has been feeding on the leaves of *Melicytus, Carpodetus*, etc. As summer advances, ripening the clustering drupes and berries, the fruits of the fuchsia and the *Coriaria* afford an abundant supply of a favourite food. We have found it engaged, seemingly in a search for insects, prying amongst the hoary filaments of the drooping greybeard moss that decks the branches of so many trees in some of the gloomy alpine valleys. The long tarsi carry the body well above the damp mosses when collecting its food on the ground; its mode of progression, by a series of leaps or bounds, may also tend to keep its plumage clear of humid plants. When really alarmed it leaps with great rapidity, covering a wide space of ground with each effort. Like the keropia [thrush] it seeks safety amidst the low undergrowth of the forest.

---

* I heard the note, since the above was in print, through the kindness of Mr. W. W. Smith of New Plymouth, in March, 1926. The sound was that of a mellow bass clarinet.

"The sexes appear to be united in close companionship. We have noticed a pair on some favourite fruit-bearing tree, caressing each other with their beaks. A pair kept in confinement lived thus imprisoned for about two years, but when one died its mate only survived some few days.........

"In January, 1873, whilst exploring the bush that fringes Milford Sound, the writer was so fortunate as to discover five nests, at heights varying from ten to seventeen feet above the ground. The first specimen we found placed on the extended limb of a totara (*Podocarpus*) that overhung a deep, ferny gully. The nest had been reared on the remains of an old structure, and the foundation, which was quite two feet across, made of sticks and sprays firmly interlaced, smoothly lined with leaves of soft grass. From wall to wall outside, the measurement was found to be 16 in.; diameter of the cavity 8 in., with a depth of 3·5 in.

"The parent bird allowing a very close approach, was found to be covering two nestlings as yet unable to see........ The old bird suffered a close examination of its home and its inmates without uttering any alarm cry or showing any signs of defending its young, thus differing very much from the habit of the keropia; yet there was not that exhibition of utter helplessness which some birds—as for instance hymenolaemus [blue duck]—manifest under similar circumstances...........

"Such is a matter of fact description of this interesting find, but it fails altogether to convey the least idea of one's sensations on sighting an object that had been so long, so far, and so often hunted for. At last there was the nest, together with the bird; few persons perhaps can realise the intense pleasure and satisfaction which the writer experienced when he caught sight of the nest with the parent bird comfortably seated therein; for years the search after the nest of the kokako had been carried on as opportunity offered; hundreds of miles had been traversed in this quest, amongst rough wood-dotted gullies and terraces of river-beds on the east and west coasts.........''

Of the six Maori names recorded (WJ, p. 107) the one most commonly used is kokako. It was one of the birds seen by Kupe, the celebrated Maori voyager, who visited New Zealand before the great migration took place, about the year 1350. He found only two inhabitants in the country, says the tradition (GO, pp. 130-1), a bird which he named the kokako, and another bird which he named tiwaiwaka (fantail). When directing Turi, who wished to emigrate to New Zealand, he said, ''When you arrive at the islands, you had better go at once and examine the river that I discovered (said to be the Patea); its mouth opens direct to the westward. You will find but two inhabitants there (meaning the kokako and tiwaiwaka); one of them carries its tail erect and sticking out. Now do not mistake the voice of one of them for that of a man, for it calls out just like one; and if you stand on one side of the river, and call out to them, you will hear their cries answering you from the other.........''

The bird plays a small part in Maori folk-lore: for there was a time when Maui wished to compel the sun to travel more slowly, so that man might have a longer day in which to labour. He induced his brothers to accompany him to the east, where they plaited ropes of various kinds;—flat ones of three, five and nine strands; round ones of four strands; twisted ones of two strands; square ones of ten strands; and many others. These were set as a snare over the cave from which the sun at morning emerges; and when the great Ra appeared, the snare was pulled tight, and the brothers hauled away on the ropes. Maui rushed forward from concealment to attack the sun,—when snap! he burned through the ropes and soared

Family : Meliphagidae

THE HONEY-EATERS

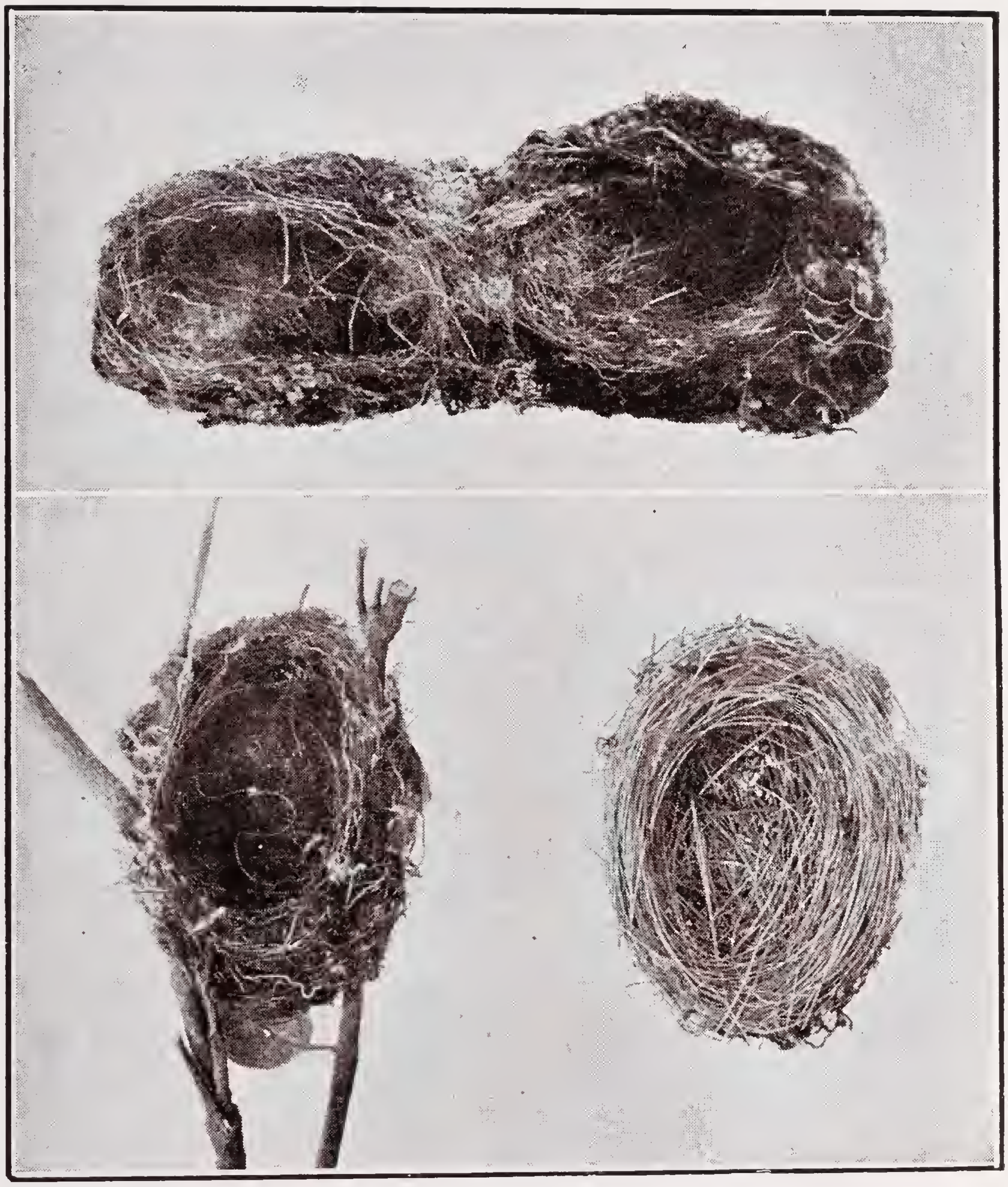
Great Britain has no representative of this family; New Zealand has four:—

Zosterops caerulescens	the blight-bird or silver-eye	tauhou
Prosthemadera novae-zealandiae		tui
Pogonornis cincta	the stitch-bird	hihi
Anthornis melanura	the bell-bird	makomako or korimako
Anthornis melanocephala	the Chatham Island bell-bird	

The blight-bird.—Summer plumage: head and over tail bright olive; back dark grey; throat yellow; abdomen white; flanks light chestnut. Winter plumage: chin and throat light grey. Eye reddish-brown. Bill dark brown, upper mandible whitish at the base; toes light brown. Total length 5 in., of which the tail is 2 in.

Eggs.—Three or four; uniform pale blue. Length, about $\frac{3}{4}$ in.; breadth $\frac{1}{2}$ in.

Nest.—The nest is very slightly built, the cup about 2 in. across and $1\frac{1}{2}$ in. deep, the sides so thin in places that the light shews through;—yet the whole shell, for it is hardly more, is firm and compact, horsehair within, then grass-blades, very thin bents, and a little lichen without, all well interwoven and felted with spider-web. The cup is usually suspended by the edges between two thin twigs, resting for support, it may be, on another twig; thin strands and spider-web bind the edges to the twigs. The nest is at times suspended to the side of hanging vines. I have seen the nest within three feet of the ground, no more than a yard or so from a pathway, and out at the extremity of the thin branches; I have also seen it at a height of five and ten feet from the ground. The cup may also be lined with the downy seeds of the clematis. I have one nest which is built almost entirely of long flax-fibres from the drying-ground of a flax-mill. As may be seen in the illustration, the light shews through the bottom. The illustration



[*H. Hamilton, photo*

Nests of blight-bird.

Double nest from Russell's Flat, Canterbury; single nests from Eastern Hutt School, Wellington.

Publications of the Polynesian Society.

⊙

The Journal is published in the first week of January, April, July, and October, and contains about ninety pages each issue, with illustrations.

A few copies of the second edition of Volume 4 (1895), price 15/-, are now available.

Single copies of the Journal—to Members, 2/6; to non-members, 5/-, except for numbers of the earlier volumes, some of which are out of print, some scarce; price will be quoted on application. Only partial sets can be made up.

MEMOIRS AND REPRINTS OF THE POLYNESIAN SOCIETY.

⊙

Vol. 1—"History and Traditions of the Taranaki Coast."

Vol. 2—"The Moriori People of the Chatham Islands: Their History and Traditions."

Vol. 3—"The Lore of the Whare-wananga;" part 1, 'Te Kauwae-runga,' or 'Things Celestial.'

Vol. 4—"The Lore of the Whare-wananga;" part 2, 'Te Kauwae-raro,' or 'Things Terrestrial.'

Reprint No. 1—"Rarotonga Records," being extracts from the papers of the late W. Wyatt Gill, LL.D.

Reprint No. 2—"The Land of Tara" (without Maori text), being Maori History of Port Nicholson, New Zealand. By Elsdon Best.

All the above are out of print.

No. 5—"The Maori," two vols. By E. Best. Vol. 1, 528 pp., 81 illus.; vol. 2, 637 pp., 148 illus. One copy to members, 6/- each vol., including postage; to others, 11/- each vol., including postage. *On sale by H. Tombs Ltd., 22 Wingfield St., Wellington.*

No. 6—"Tuhoe," two vols. By E. Best. Vol. 1, 1,211 pp.; vol. 2, 34 folding genealogical tables with index. Price, 20/- to members, 25/- to others; postage, 1/10.

Vol. 7—"Evolution of Maori Clothing." By Dr. P. H. Buck. 248 pp., 44 plates, and 150 text illus.; cloth. To members 10/-, to others 12/6; postage, 10d.

Vol. 8—"Language, Mythology, and Songs of Bwaidoga, S.E. Papua." By D. Jenness and (late) Rev. A. Ballantyne. 270 pp. To members 5/-, to others 7/6; postage, 8d.

Vol. 9—"Field Notes on the Culture of Vaitupu, Ellice Islands." By Donald Gilbert Kennedy. 326 pp., 158 illus. including 44 plates; also folding map. To members 10/-, to others 12/6; postage, 1/-.

Vol. 10—"Maori Music with its Polynesian Background." By Johannes C. Andersen. 483 pp., 95 illus. of musical instruments, dances, etc., and music examples right through text. Price: 32/- to members, 42/- to others; postage 1/-.

Vol. 11—"A Vocabulary of the Lau Language, Big Mala, Solomon Islands." By W. C. Ivens, M.A., Litt.D. 129 pp. Price: to members, 2/-; to others, 2/6; postage 6d.

Vol. 14—"The Oldman Collection of Maori Artifacts." 41 pages text and 94 pages illustrations. Price: 5/- to members; 6/- to others, postage 4d.

Reprint No. 3—Nordhoff. "Off-shore Fishing of the Society Islands," pp. 79 (illus.). 2/- to members; 2/3 to others; postage 2d.

Reprint No. 4—Andersen. "Place-names in New Zealand." Rules and first list of names approved or changed by the Honorary Geographic Board of New Zealand. pp. 49. 1/6 to members; 2/- to others; postage 2d.

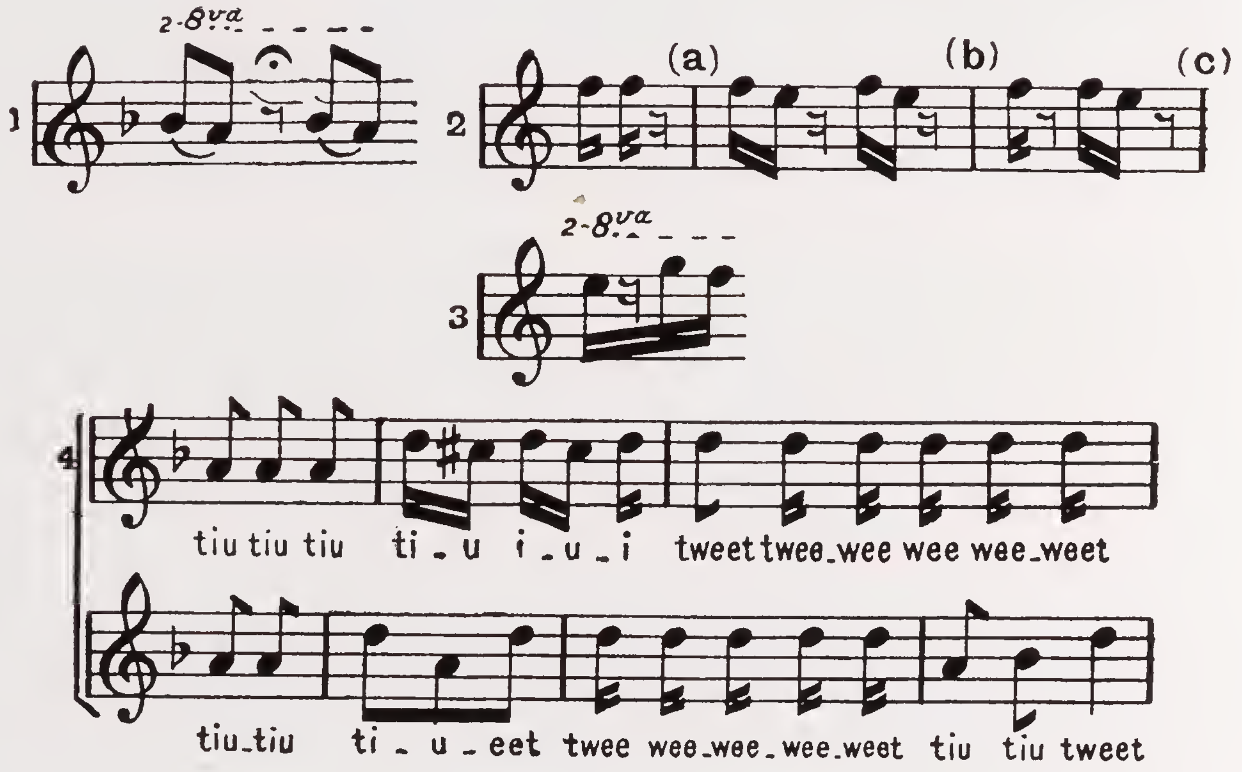
Address all correspondence to the Secretary, P.O. Box 523,
Wellington, C.I.

also shews method of suspension. The top figure is a double nest from Russell's Flat, Canterbury: it was rather crushed when packed for post. I received the nest in 1922.

The blight-bird is supposed to have come originally from Australia, and that, too, in comparatively recent years. The recorded occurrence, by 1882, "of no less than eight instances of occasional visitants from Australia and Tasmania," wrote W. T. L. Travers in that year (Tr., Vol. 15, 1883, p. 179), "gives strength to the supposition that they were aided in their transit by strong north-westerly winds. In this connection I may mention that the common sparrow has recently found its way to the Chatham Islands [536 miles eastwards of Lyttelton in the South Island] without man's intervention, no doubt assisted across the intervening waters by a north-west gale, and although both Mr. Wallace and Dr. Buller treat *Zosterops lateralis* [*Z. caerulescens*] as a true New Zealand form, I think it pretty certain that we owe its presence here and in the Chathams to a similar cause. The enormous increase in the numbers of this bird which has taken place both in Australia and New Zealand, is evidently due to a corresponding increase in the quality of suitable food provided by the introduction, into both countries, of various kinds of succulent fruits, and of a great variety of foreign insects. The Maoris............assert that it is a stranger [the word tauhou means 'stranger'] and of apparently recent appearance in these islands."

In his history, Buller (BN, Vol. 1, p. 78) still considers the bird an indigenous species, that began to migrate northwards in 1856, establishing itself in the North Island in 1862, from which date onwards it has bred and resided there as well as in the south. The coming and going of the bird, on which Buller lays stress, is still a characteristic, but one it has in common with the grey warbler; at certain times of the year neither is seen or heard around human habitations. Potts first observed it in Canterbury in 1856, after rough weather, and it was apparently first seen in Nelson in the same year. If indigenous, it is hardly likely that it would start coming north only so recently as 1856.

The call-note is a plaintive slurred note, as in (1), uttered once or twice, coming at times from all the birds as they move feeding in a little flock of ten or more. The same slurred note, uttered more briskly, is the one used when the bird is flying high in the air at night during local migration. One evening in April I heard such a flock passing over the town of Christchurch. It was twenty minutes past nine, and for one or two minutes the sound came from the air, passing away, apparently, to the south-east. It sounded like scores of birds all twittering, almost singing, the two notes of (*a*) in (2), or the slurs of (*b*), or the note and slur of (*c*); or (*a*) and (*b*) combined; a medley of sound; individuals could not be distinguished. The notes, whilst not so long drawn as the ordinary call, had yet the characteristic plaintive sound of the note of the blight-bird. The call (1) appears to be the flock-call; when two birds are feeding together, they indulge in a much fainter, conversational twitter, the notes of (3) repeated: these, though uttered by two birds no more than ten or twelve feet distant, were barely audible. As they twittered, the birds moved about, preening themselves, and searching for insects. I have only once heard the song sung for any length of time. This was on Banks Peninsula, and the song was very quiet and sweet in quality, somewhat like the song of a canary, but not nearly as loud and shrill.



The bird sat in a tree not more than twelve feet away, and held its bill in the air whilst singing, its throat throbbing, especially on the *tiu tiu*. Though very clear, the note was hardly a whistle, being capable of vocalization as noted. The song was composed of a few phrases, marked by the single bars, combined in various ways as in the song of the lark. Many more combinations entered into the song, but these were all that I was able to catch at the time: he did not sing long, and as it was the first time of hearing the song, of which the fragment (4) is part, I was naturally more inclined to listen than to note it down. The songster was quite alone; I heard no other blight-bird near; and I am convinced that birds often sing for their own gratification, as in this instance; for on another occasion when I saw a pair of the birds together, the male twice started his song, and was twice stopped by the female, who flew to the attack as soon as the first few notes were uttered.

The bird is known as the blight-bird, the wax-eye, silver-eye, ring-eye, white-eye, twinkie. The first name is given because of the fondness the bird shows for blight; the other names refer to the prominent ring of white feathers around the eye: the names wax-eye and silver-eye are heard as often as blight-bird, but the latter name should be retained in order that the usefulness of the bird may not be forgotten.

Of the nine Maori names recorded (WJ, p. 199) tauhou is the one most commonly used. One at least of the others, karupatene, must have been given since the coming of Europeans to the islands, as it is a descriptive name meaning "button-eye." The characteristic feature of the bird is again emphasized in this name, and possibly also its recent arrival; had it always been known to the Maori it is hardly likely that it would receive a name that is half European.

The majority of the Maori names of birds is echoic. It nevertheless depended upon one man's ear as to the word that was to be adopted to signify any certain bird, for a bird or other object is usually familiar for some time before it receives a name, and many will be ready to adopt a name immediately it is given, and it will be used by them provided it appeals to them as appropriate. With Maori names, too, where there was no written language, a great deal doubtless depended upon the first name to be recorded and commonly accepted among readers, and something upon the reliability of the man recording it. There is but one form of the name huia, but of most of the other names there are several forms, and of some there are a great many. It may be that an accepted echoic name was no more than a compromise; it did not exactly represent the sound people fancied they heard, but represented it more or less approximately; and it must be remembered that a sound once suggested may be heard where it was not before heard, or not heard consciously. There are, for instance, two names by which the morepork, the common New Zealand owl, is known,—koukou and ruru. When the bird is heard close at hand, these names as it were superimpose and become one; —the cry is often distinctly *krou-krou,* the "*r*" sound being the continental "*r.*" As, however, the Maori consonantal sounds are single—every consonant being followed by a vowel,—the sound krou-krou could not be reproduced by them; and accord-as the "*k*" or the "*r*" was the more prominent to the name-giver, or name-user, so it was repeated as koukou or ruru. So with variation in many of the echoic names.

A few of the European names of birds, too, are echoic; the finch is said to be so named from its call-note, the typical finch, the chaffinch, being known also as pink, and spink; the Danish name is finke, and the German finck; the French name is pinson. The cuckoo is, in the three countries, giog, kukuk, and coucou. Many more of the names are from the appearance of the bird;—goldfinch, green-linnet, redpoll, white-throat, blackcap;—these are purely descriptive. The last named is in French rossignol a la houppe noir,—the black-tufted nightingale,—a beautiful name; and the whitethroat is similarly gorge blanche. The name white-ear is descriptive, but the anatomical term is a euphemism most misleading; the name is said (OC, p. 177) to be derived from Anglo-Saxon words meaning "white rump." The name of this bird has been cited (OC, p. 177), as an example of English nomenclature as opposed to French, the English name being given from the appearance of the bird, the French name, traquet, from the sound of its call, *chacke, chacke.* The French name for the white-ear, however, appears to be cul-blanc, which is certainly more directly descriptive than the English name; traquet would appear to be the name of the stone-chat. Other names describe the habits of the bird,—such as the fly-catcher, whose names in Danish, German, and French are fluesnapper, fliegenfanger, and gobeur de mouches, or gobe-mouches, being exactly similar in signification—fly-snapper being most truly descriptive. In instances such as this it is a question as to whether all the names arose independently from observation of the same fact, or whether one nation has adopted the name given by another. The wagtail is vipstjert in Danish, a name with the same meaning as the English word, but bach-stelze, brookstilt, in German; the tail is the feature noted in the French name hoche-queue, notched-tail. The linnet, so named because of its fondness for lint-seed, is linot in French, and flachs-fink, flax-finch, in German. The missel-bird, or missel-thrush, or mistletoe-thrush, is mistel-drossel in Danish and German, and grosse grive de gui,—a great mistletoe-thrush, in French. It receives its name from its feeding on the berries of the missel, or mistletoe. Mudie (MF, Vol. 1, p. 270) writes—"There is a sort of double naming in this bird; it is called the missel-thrush because it 'missels' (soils) its toes with the viscid slimy juice of the mistletoe berries, of which it is very fond in the winter; and the mistletoe gets its name because it 'soils' the toes of the bird." "Soiling" is again euphemism; but the whole explanation is fable.

Once a name is given, it again forms the basis of compound names—titlark, woodlark, skylark, etc.; and so the Maori has kaka, the brown parrot, named from its harsh cry; and with kaka as basis, there are kakariki, the green parrot,—parrokeet; kakapo, the night parrot. The mountain parrot, however, is named after its peculiar cry, *kea,*—a word which should probably be spelt kia, as that is distinctly the sound of the bird's cry; and Potts apparently was inclined to share this opinion, as he heads his chapter on this bird "kia, kea, or sheep-killer" (PO, p. 184). It is also spelt kia by James Collier (CO, p. 225).

Of several common names the origin is now lost, such are lark, which in Danish and German is laerke and lerche, but alouette in French; and thrush, with its variant throstle, drossel in Danish and German, and grive in French.

The tui appears to be the only bird named from that commonest of all bird notes,—*tiu* or *tui;*—the former when slurred downwards, the latter when slurred upwards. The blue mountain duck is named whio in Maori from its whistling cry, and the call of the British wigeon is *wheo,* from which it is named the whew-duck. The cry of the whinchat is *u-tick,* and this is also the cry of the New Zealand fern-bird.

The tui.—Bluish or greenish-black, with white streaks on the back of the neck, and a white spot on each wing. Throat [illegible] with two tufts of white curly feathers. Eye dark brown. The sexes are alike. The young are slaty-black with a light patch on the breast. Bill and feet blackish-brown. Total length 12¾ in., of which the tail is 5 in.

Eggs.—Three or four; white or rosy, speckled or mottled more or less with brown of various shades. Length about 1¼in., breadth ¾ in. The eggs vary in shape and coloration.

Nest.—Built in a cup formed by small branches, in a thick clump of side-shoots, or in a not too dense thicket of supplejack and other bush vines, twenty to thirty feet from the ground; sometimes lower. A rather large structure, composed of dry twigs intermixed with coarse green moss, the cavity neatly lined with fibrous grasses, or with the black hair-like substance from frond-stems of tree-ferns. A nest in a tree-manuka on Kapiti was built about twelve feet from the ground. As foundation a number of much-branched manuka sprays were laid between forks and on branches affording horizontal support, forming a platform on which the nest was built; this was composed principally of grass, very loosely put together.

One nest sent to me from Banks Peninsula looked little more than a big handful of cocksfoot from two feet to two feet six long, roughly bent to form a cup.

Incubation and development of the young appear to be very speedy. Guthrie-Smith (GB, p. 156) notes the finding of a nest on the 12th November; on the 23rd the bird was sitting hard, and on the 11th December the young were gone. He notes that this is the only species he has known to sing on the nest. "We were close to her," he writes, "yet she sang as if her song could have no ending........."

This most beautiful and attractive bird was made known in Europe on the publication, in 1777, of Cook's second voyage. "The poy-bird," he writes (CV, Vol. 1, p. 98), "is less than the wattle-bird [kokako]. The feathers of a fine mazarine blue, except those of its neck, which are of a most beautiful silver-grey, and two or three short white ones, which are on the pinion joint of the wing. Under its throat hang two little tufts of curled, snow-white feathers, called its poies, which being the Otaheitean word for ear-rings, occasioned our giving that name to the bird; which is not more remarkable for the beauty of its plumage than for the sweetness of its note. The flesh is also most delicious, and was the greatest luxury the woods afforded us." In a full-page plate facing the previous page in the volume, where the bird is shewn seated on a spray of fuchsia, it is called the poe-bird. It was apparently described and figured the year before, 1776, in Brown's "Illustrations of Zoology" (BN, Vol. 1, p. 95).

The tui was brought alive to England on 23rd January, 1849, when H.M.S. *Dido* arrived at Portsmouth from Auckland. She had left the latter place on the 4th November, 1848, making the passage in 77 days, "the most extraordinary passage on record." The London "Times" of 24th January has this paragraph:—"The *Dido* has brought home a few valuable curiosities for naturalists, the chief of which is a small black bird about the size of the English blackbird, called the Tui (the parson-bird of Captain Cook), believed to be the first of the species ever brought to England alive. Many previous attempts have been made to bring this bird to England, but all hitherto have failed.'' It appears, however, to have been brought alive to England four years earlier, in 1845, the bird then brought being bought for the Earl of Derby's collection at Knowsley.

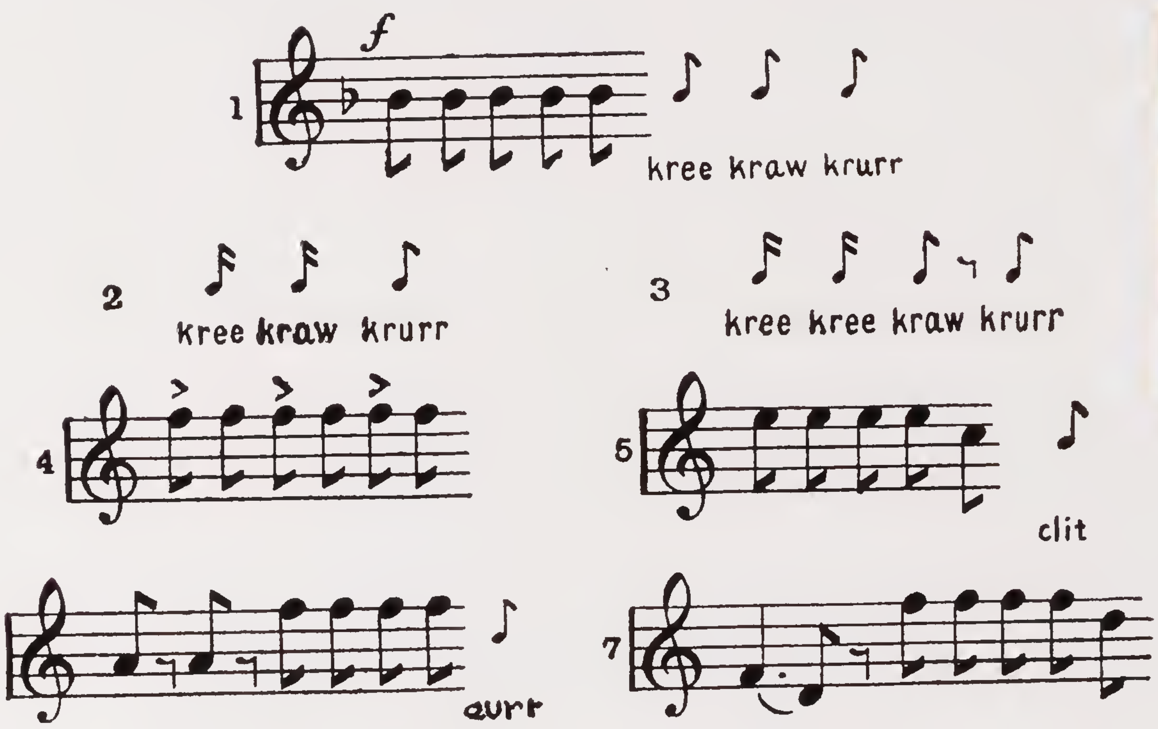
During the short periods of time I have enjoyed in the bush,—two or three weeks of holiday each year at Christmas and New Year, the tui is certainly the bird that has given me most constant pleasure. Others, such as the male bell-bird, may have a more exquisite song; the warbler may charm with a longer sustained melody;—but none has the variety of notes of the tui, either in range or quality, or his versatile manner of delivery; none is more tantalizing in revealing what he *might* accomplish were it worth his while; his whisper-songs are almost as dainty as those of the bell-bird; his jangles are inimitable. Then the bird has an appearance; his very flight is that of a person of consequence;—and it is a most beautiful sight to see the tui rifling, on a sunny day, the honey of the deep-red flowers of the long-bladed flax. The blossoms actually seem coy, drooping and swaying away from him; but he fondles, cranes, and persuades, in all postures, and always gracefully;—and is rewarded, not only with the honey, but with an adornment of the vermilion pollen of the flowers, till he has the appearance of a striking new and rare variety of his species,—has the appearance, too, of the vagrant Whatihua, whose stolen visits his wife discovered through the red favours of his attractive forest-maiden. He sings at all times, too; by day, and by night; at rest, on the nest, and on the wing; is even musical in an æolian way when diving stone-like from a height into his umbrageous haunt. Whilst he usually resorts to the spreading heads of the higher trees, his excursions often take him near ground; he looks beautiful, if watchfully apprehensive, when ''like a nymph to the bath address'd;'' he will sail like a bolt along a favourite open aisle among the lofty pillars of the bush; and on one occasion when I had seated myself for purposes of observation at the curved terminal of such an aisle, the sudden whirring flutter of his wings in his arrested flight within a few feet of my head, as he turned from my unexpected presence, shocked me into a thought of the descent of the great roc. The same thing happened on another occasion with a long-tailed cuckoo; and on yet another occasion, a quail started from my very feet with a resounding and heart-shocking whirr; and the Maori had experienced the same, for his scattered thoughts would gather into the proverb, *He kokoreke puoho tata* (GK, p. 18). "Even a quail startles by springing up quite close to you,"—which has also passed into a saying, meaning to discomfit the enemy. Hardly a writer on New Zealand but has had a word for the tui, his melodious song, his cacophanous articulations, his pantomimic gestures. He was a favourite both with the Maori and the early colonist, and both kept him as a cage bird: he proved docile and cheerful in captivity,—a great mimic at all times. He was known as the mocking-bird in 1840, when one Peter Brown, a colonist, wrote to his friend in England,—"The mocking bird is the same as your blackbird, with a white tuft below the head." (N.Z.J. 1840, p. 223).

E. J. Wakefield (WA, pp. 58-9), too, knew him as the mocking-bird. "The little birds," he writes, "were chiefly the tui, or mocking-bird............ Its most common note is a mixture of two or three graduated notes on a flute, a sneeze, and a sharp whistle; but it imitates almost every feathered inhabitant of the forest, and, when domesticated, every noise it hears........" Again, a colonist writing home on 20th January, 1851, (CP, p. 310), says:—"........the tui, or parson-bird, or mocking-bird, as it is indifferently called. Nothing, not even the nightingale, can approach the sweetness of this tui when he sings his own song........."

Other cooks beside the great discoverer, too, have noted that his flesh is delicious, and a great deal might be written about the Maori method of snaring and preserving the tui and other birds during their season, for birds were valuable articles of food with them,—but my concern is with the delight they give to the ear and eye; not to the palate. When writing of birds I have not heard, or heard seldom, I have quoted what others have said regarding their song; but as I have heard the tui, and have seen the tui,—I shall quote no more, but try to do him the justice he deserves by describing in meagre words a few of his notes and songs as I have heard them; though now that areas of bushland have been reserved and made sanctuaries, the tui will probably not become extinct, and whoso will may hear him in his native haunt. He has in a measure, too, taken kindly to civilized life, dividing his attention at such times as the rata-like flowers of the Australian gum can afford him the honey he loves, between the plantations created by the colonists, and the natural forest which the same inconsistent being has almost destroyed.

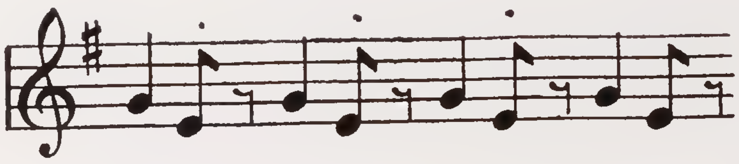
In the matter of quotation, an exception must be made in favour of Cook, who was struck, on 17th January, 1770, with the beauty of the early morning song of the New Zealand bush. The ship lay in Queen Charlotte Sound, "at the distance," he writes (CV, Vol. 2, pp. 390-1), "of somewhat less than a quarter of a mile from the shore, and in the morning we were awakened by the singing of the birds: the number was incredible, and they seemed to strain their throats in emulation of each other. This wild melody was infinitely superior to anything that we had ever heard of the same kind; it seemed to be like small bells, most exquisitely tuned, and perhaps the distance, and the water between, might be no small advantage to the sound. Upon enquiry, we were informed that the birds here always began to sing about two hours after midnight, and continuing their music until sunrise, were, like our nightingales, silent the rest of the day." On the 31st January he writes (CV, Vol. 2, p. 401), "In the evening, we had a strong gale from the N.W., with such a heavy rain that our little wild musicians on shore suspended their song, which till now we had constantly heard during the night, with a pleasure which it was impossible to lose without regret." A different quotation is given by Bolton (BH, Vol. 2, p. 23), when writing of the nightingale:—"........Yet that some birds of a similar kind inhabit the islands of the Southern Ocean may be gathered from the Journal of Captain Cook's First Voyage, about the 20th January, 1770; where it is stated that, 'an amazing number of birds usually began their melody about two o'clock in the morning, and serenaded the gentlemen till the time of their rising; the ship lying at a convenient distance from the shore to hear their music advantageously. These feathered choristers, like the English nightingale, never sing in the day time.' " It seems strange that these observers should not have heard the day-song.

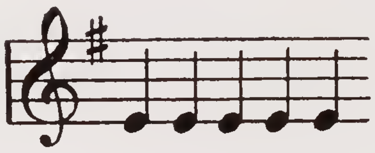
The notes of this most versatile bird are different in different parts of the islands; and even in the same locality they vary from season to season, new notes being sounded in addition to old ones repeated; and it was in truth ignorance of the bird's extensive repertoire that led me to attempt the recording of a few of his innumerable notes and strains, and songs half-uttered.

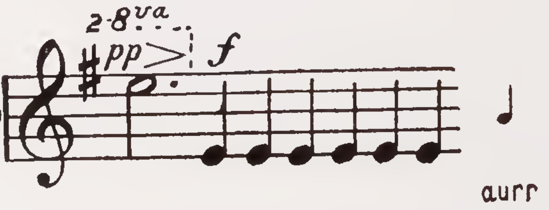


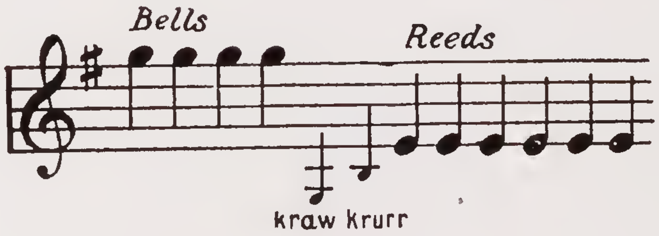
The most common call heard in the Stony Bay bush, Banks Peninsula, from 1907 on, was that shewn in (1), five clear bell-notes, slightly ventriloquous, so that they and the curious gutturals following them appeared to come from different birds, —the bell-notes from one near by but out of sight, the gutturals from the bird under observation. When uttering the notes, the bird sits motionless with neck outstretched, usually in a high tree, totara or matai. Each guttural has its distinctive vowel sound, and the "*r*" is the Continental "*r*";—the sounds may be imitated, except in loudness, by softly breathing the words past a loose uvula, which will then vibrate. These gutturals take all manner of variations, and as they are more often heard with calls or songs than alone, their different qualities will be considered together with the notes of the call or strain of which they form part, or upon whose music they intrude. They have been likened to coughs, sneezes, laughs, the shattering of a pane of glass,—and the similes are not inapt. At times they are of the same duration as the notes amongst which they occur; at times they vary, as indicated by the small notes in (2) and (3). The bell-notes are repeated from four to eight times, five being the usual number; and I have found that those sung on the same day vary little in pitch; often not at all.

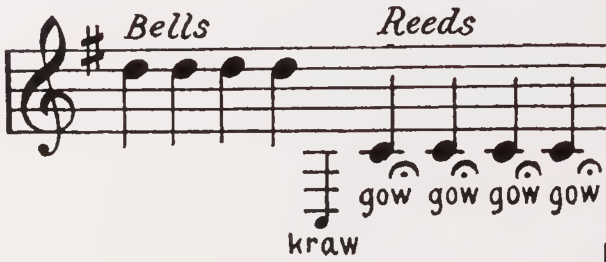
They were higher in pitch during 1911, as in (4) to (7), and this pitch is the same as that recorded by Fenwick, when travelling in the southern part of the South Island. These notes were uttered in a tempo considerably faster than the tempo of (1);—about five notes in a second. They sounded like the tinkling of a distant sheep-bell, varied in number from four to six, and varied slightly in pitch on different days. The notes of (5) were of the same quality as those of (4), but they were not divided into pairs by accent, and they were occasionally followed by a drop to *c*, and once by an expletive vocalized *clit*. In (6) two clear notes, like beats on a musically-ringing anvil, preceded the sheep-bell notes, and a guttural *aurr* followed. Instead of being preceded by two anvil-notes, the sheep-bells were at times followed by two notes of a reedy quality, broader and more blatant than the tone of a clarinet, yet musical. In (7) the sheep-bells were preceded by a long-drawn note like the cry of a goose, but plaintive and melodious, as though a goose might sing a swan-song. The drop on *d* was staccato, and the cry at times was followed by the gutturals *kraw krurr* instead of sheep-bells. The cry when uttered once only was more drawn out and melodious than when uttered several times as in (8). Here the notes were connected, but not slurred. Other than the goose-cry, I could think of no similar sound, excepting the imaginary one of a bell sounding through a membranous kazoo, suddenly muted as the *e* was struck. It might be vocalized *vee-ee-u, vee-ee-u*; but the sound varied considerably during the day, the drop to *e* becoming very faint, or being omitted altogether, and a guttural *gaurr* sometimes following. It might be likened to the cry of a goose with a cold; less musical than (7). Still later in the day it was as (9), and the sound was like that of a vibrating membrane having a resonant chamber to give it body; or like the vibrating of a reed to which adhered a loose thin strip of metal, adding a metallic rattle to the reedy sound. These five notes were more deliberately sounded, occupying about two seconds in utterance. They varied in number from one to seven, and were usually four or five. A year later they had the tone of a deep clarinet, very resonant, and vocalized *eoo, eoo, eoo.* A long-drawn, sweet, very soft note, three octaves higher in pitch, sometimes preceded the reedy cry, which, too, was at times followed by *aurr,* making the full strain of (10).

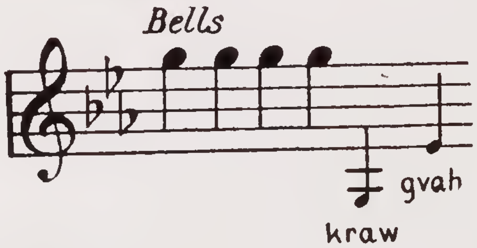
8


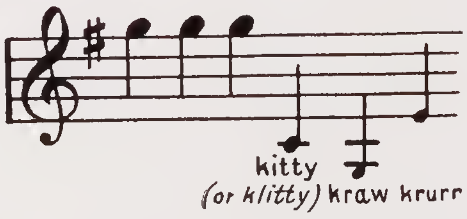
9


10


11


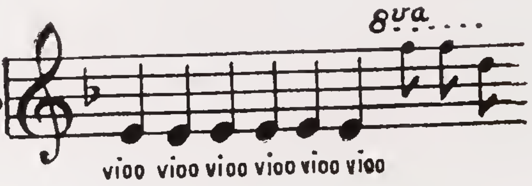
12


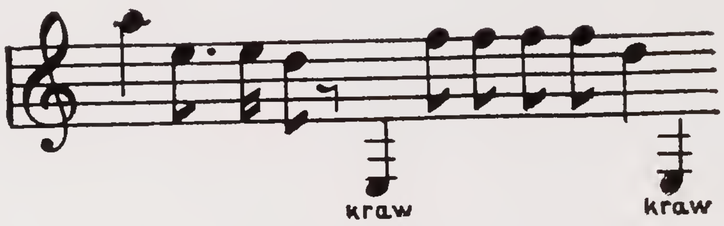
13


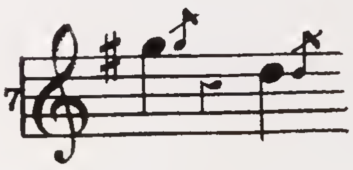
14


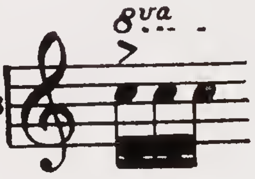
When the bird uttered this reedy cry, it stretched out its neck, opened its beak very wide, and beat downwards with its head at each note, as though its head were the hammer, and that action produced the note on the air-anvil. The high note was one of the whisper-song to be referred to later. On the day (10) was noted, there was a catch following each reedy note, vocalized *ke-oo, ke-oo,* with a swell on the *e* of *ke* (the *e* as in "*net*") ; the catch was the *oo,* audible only when near at hand, and it had less of the reedy tone, being evidently caused by a sudden change in the aperture through which the sound was produced. At times this gave the impression that the *oo* was an octave lower than the *ke*; but the difference was probably in the quality, and not in the pitch of the note. At times the *ke-oo* had the sound of *howw,* the pause on the *w* bringing back the *oo* sound. The note changed during a fortnight from a clear anvil ring to the reedy sound in an acute form, with the rattle, mellowing again towards the anvil sound. People living in the locality declared the cry new to them; one compared it to the jarring ring of a cracked anvil; another to the knocking of rusty iron pipes. There were not more than three or four birds in the bush, about 30 acres in extent, that uttered the cry; one, particularly noticeable, sat on the same totara day after day, well in view. Bell-notes and reedy notes were occasionally played off against each other, as in (11), so the new note was evidently under full control of the bird. On one day the sound was distinctly like the twanging of a jews' harp, the shape of the open lips being modified for the *e-oo* whilst breathing on the twanging metal tongue. This peculiar sound I heard again at Kapiti in 1916. Other variations are shewn in (12) to (14), the relative pitch of the expletives being also shewn. The *kitty* or *klitty* of (14) was similar to the *clit* of (5), with a short sharp after-sound. The bird from which these variants were obtained flew off with a sustained vibrating note that made it sound as though it were a flying æolian harp. The reedy notes of (15) vocalized *vioo, vioo,* were on one day followed by three high notes more like a whistle in sound than bell-like. The full theme of (16), which is almost a song, though composed largely of call notes, was heard on only one day; at times the first half would be sung alone; at times the second half; occasionally the full theme. In (17) two full bell notes were followed by faint after notes, as though the hammer of a chiming bell had just touched again on the rebound; the division between the note and its quasi-echo was barely discernible. A short note with double rebound, making a very rapid triplet, is shown in (18) : this sometimes preceded the reedy note, sometimes followed it, but was usually heard alone: it had an open vibrato clarinet sound.

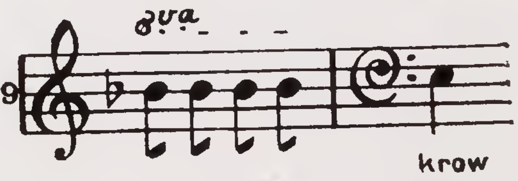
The notes of (19), heard in January, 1913, were clear whistles, followed by *kraw*; or one whistle might precede four reedy notes, as in (20). The three low notes of (21) were not bell, nor whistle, nor reed, but a thick muffled sound like *qug, qug, qug,* at times sounded singly, at times followed by *kraw.*

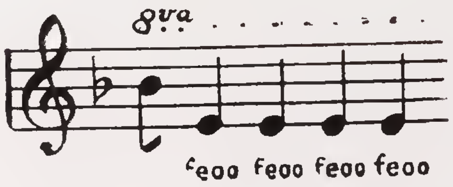
15


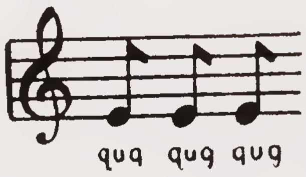
16


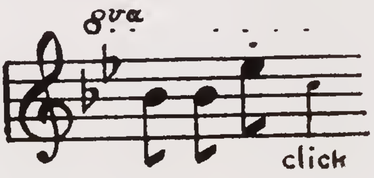
17


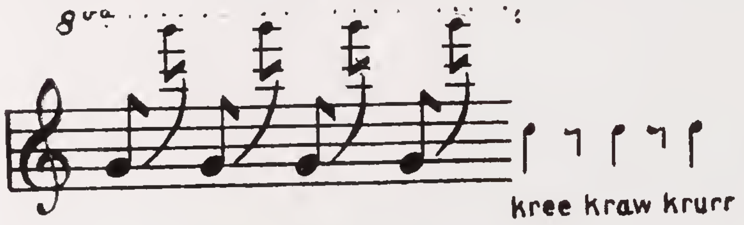
18


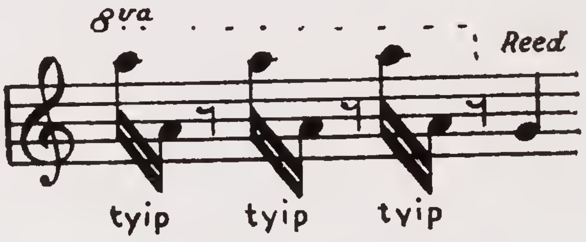
19


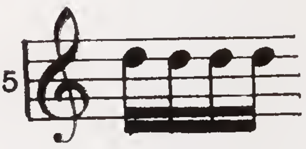
20


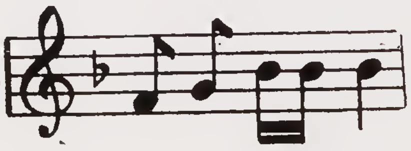
21


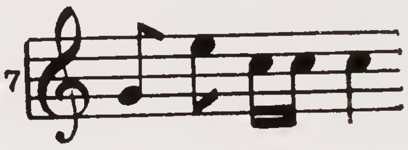
22


23


24


25


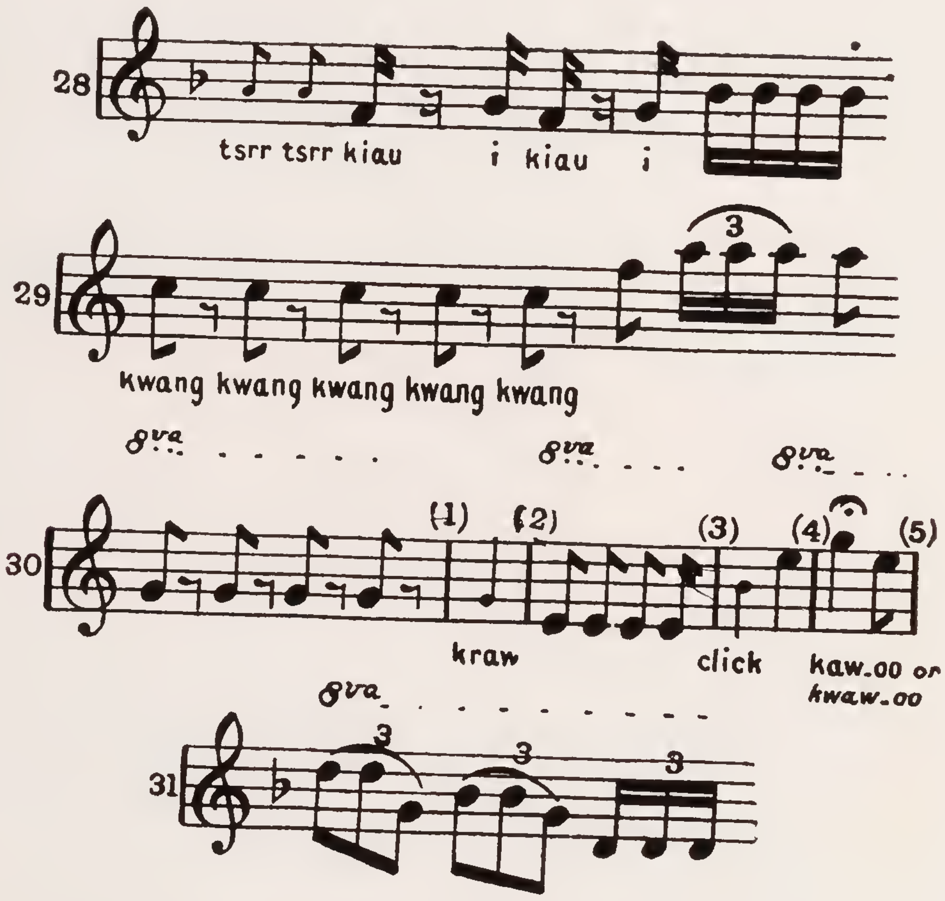
26


27


In (22) two bell notes were followed by a staccato whistle, the whole closed with a *click,* or click with *kraw krurr* added. In (23) each bell-note was followed by a light note, barely audible, *two* octaves higher, concluding with the gutturals *kree, kraw, krurr;* and in (24), heard two years afterwards, in December, 1912, there was a downward slur of *one* octave, three times repeated, and followed by a reedy note.

At Mount Misery, near Hokitika, on the bush-covered west coast of the South Island, the call-note in September, 1914, was a quick gurgle of notes, as in (25), the sound being bell-like, but softened, as though a bell were struck quickly with a wooden mallet.

At Kapiti, in December, 1916, and January, 1917, the call-notes differed from those heard before. There were many variations, the ones most often heard being (26) and (27), and they were sung every day, the semiquavers varying from two to four in number, sung at the rate of about ten a second,—the effect being that of the rebounds of a hammer on an anvil. In this respect they resembled (25), but differed in quality of the sound. At times the rebound quickened to a vibrato, lightly uttered, but quite distinct. The calls were uttered in about a second and a half. The first note was usually vocalized more or less, at times distinctly *tiau* or *tiok.* The phrase (28) was sung whilst the bird was in the air.



The tui flew up, closed its wings, and dived perpendicularly from a height of 20 to 25 feet into a karaka, spreading its wings and tail at the moment of entering the foliage. The notes were sung during the fall, time under two seconds. The *tsrr tsrr* was almost a squeak; the *f* was in both cases faintly vocalized *kiau,* and the *g* "*i*" as in "*hit.*" The concluding notes were full

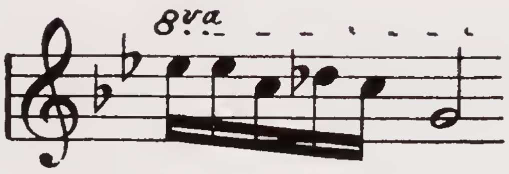
THE NEW ZEALAND HERALD, WEDNESDAY, JUNE 28, 1950

flute-tones, but they were unmistakably call-notes. In (29), too, the call-notes followed others;—the opening notes uttered at the rate of three quavers a second—that is, quaver, rest, and quaver—sounded like the ring of a bell through the horn of a gramophone; these were heard occasionally in January, 1917.

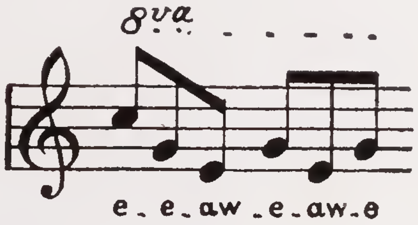
In (30), heard on Banks Peninsula at the end of 1913, the call-notes were combined with other sounds and notes, making a simple song. The full theme was sung only a few times, being more often discontinued at bar 3, this portion of the song occupying from three to four seconds in utterance. Less often it included all up to bar 4. The sound of all the notes was flute-like, the concluding ones only lending themselves to vocalization. The notes in bars 3 and 4 were varied a great deal; instead of *e* four times repeated, they might open on *f*, a ninth higher, and run *f*, *a*, *g*, *f*, or other intervals. Whilst singing the bird sat with head thrust out and upwards, until the *kraw* was uttered, when the head was lowered and thrust downwards, and held so during the utterance of the second four notes. In bar 4 the second note was varied, occupying any position in the octave between *e* and e^1. At times the low notes of bar 3 were preceded by runnel-notes in triplets, as in (31). Even the pure bell-notes vary in the way in which they are uttered. In December, 1908, a single note, f^1, was uttered as a call-note,—one single note, sounded at intervals. It was explosive, but very clear and bell-like; and if the pop of a cork could be imagined as a clear sound, it was as if the note popped like a cork from a bottle.

There is a series of jangles that the tui often sang at Stony Bay on Banks Peninsula in January, 1912, either during flight, or immediately before or after, as if to announce his coming and going. The jangle shewn in (32) was often confused from a beautiful jangle to an elfin juggle of bells, when it was difficult to distinguish either pitch or interval, though the last long-drawn note was usually definite, and often remarkably sweet. The jangle (33) was very often heard, the whole lasting little over a second, the sound being open and bell-like, yet faintly vocalized: the second *e* was often *d*. This jangle varied slightly and was often confused almost to a juggle by the introduction of one or more light notes as in (34). Others were introduced than the one shewn, but they were so lightly uttered, and varied so much in position, that they baffled me in any attempt to fix them. The jangle (35) lasted nearly two seconds. (36) took barely a second; the jangle was enclosed between expletives. One jangle opened with a barbaric twang. These jangles sounded as though the bird merely set free the mechanism, and then the bells producing the notes swung freely in no determined order, and often in no determined time,—though many were frequently repeated. At times the notes were clear, and at times confused like the occasional jangling irregularities of inexpert bellringers.

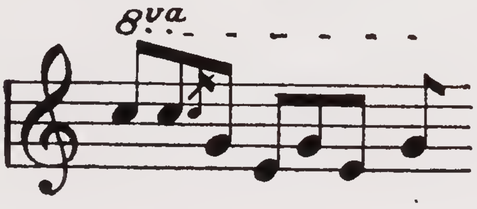
32



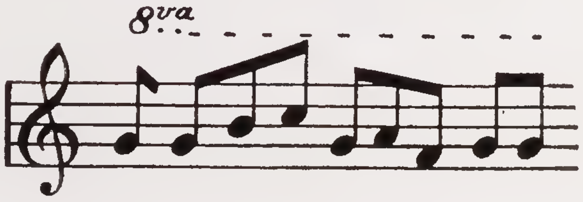
33



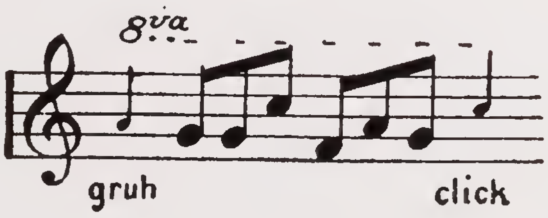
34



35



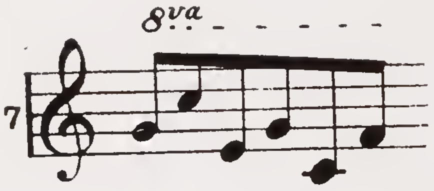
36

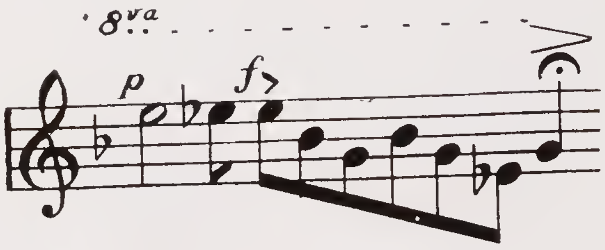


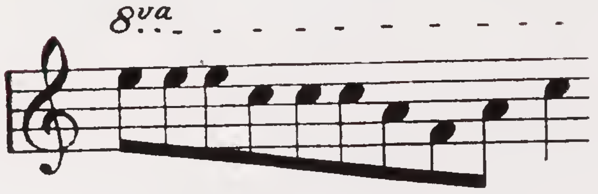
The jangles above are a few of the more definite of those recorded; the others, and there were many, sweet bells jangled, but never out of tune and harsh, were yet too complicated and quickly tumbled for me to do more than admire.

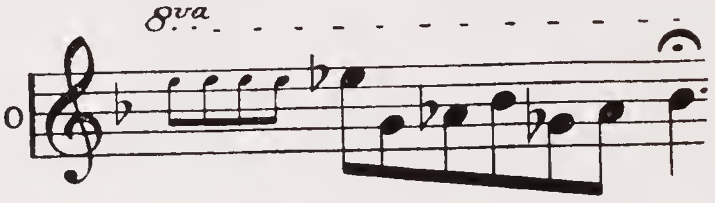
There is an allied series, bell-cascades or runnels, where the bird seems to exercise more control over the notes, every runnel being distinct, clear, and orderly. The notes of the clear runnel (37), uttered in about a second, were well divided, but not staccato. The beautiful runnel (38) was preceded by a long-drawn light note, and followed by a sustained diminishing note, the whole occupying a second and a half. The trebling of the notes of (39) gave this runnel a distinctive charm; it was repeated the following year, January, 1913, but lacked the artistic close of

(39). The opening and close of (40) related it to (38) ; but the runnel itself, a common one, was quite different. The runnels, like the jangles, were sung during flight, or immediately before or after, so that both series should possibly be considered as one, the runnels being the definite, the jangles the indefinite or less definite form of the series. These songs are sung morning and afternoon, as the tui moves about from tree to tree, looping the sunlight with bell-beads of song as he glides from shade to shade.

37


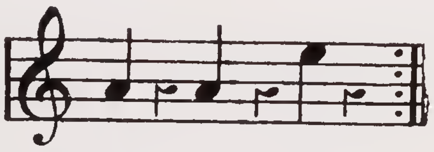
38


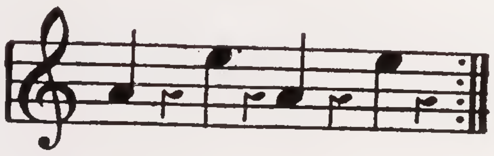
39


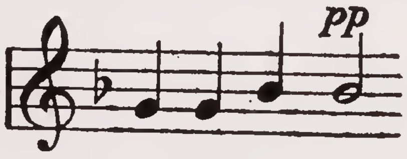
40


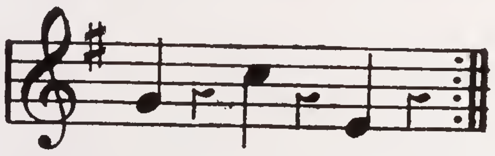
The evensong is remarkably like a vesper-bell, heard at a distance across a quiet landscape. The notes of (41), varied as in (42), were sounded singly, at regular intervals of two seconds on an average; that is, the note itself may have occupied a second or a little less, the rest a second, or a little more. The bird singing this perfect vesper often sat at the edge of the bush, on the topmost jag of a dead totara, lifted well above the billowed green of the bush below. The notes of (41) and (42) were taken in December, 1908; and in December, 1910, the notes were *g, d, g, d*. These vesper-bells, sung too at times by two or three birds separated by considerable stretches of bush-clad valley, sounding in the quiet of the evening, were most delightful to hear. There was no bush except in the one deep winding valley, and the ridges and ranges of hills, with verdured slopes and rocky outcrops, lay folded in sunlight and shadow, the near flanks pink and yellow with the heavy flowering heads of cocksfoot. At Kapiti, in December, 1916, the notes of the evensong were as in (43) (44). The notes were sounded at the rate of three in two seconds. The usual theme was a repetition of (44) ;

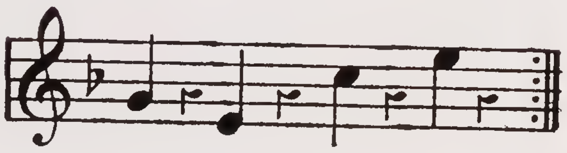
at times it was varied as in (43). Notes of a somewhat similar character were also sung during the day, as in (45), where the notes of the common chord occur, and in (46), a very unusual theme, the notes of a minor chord; this was sung several times on the one day, 27th January, 1917, so it was evidently no mere accidental combination of sounds. The value of the crotchets in these themes is about a quarter of a second. It is often difficult, if not impossible to say of certain notes from an unseen bird if

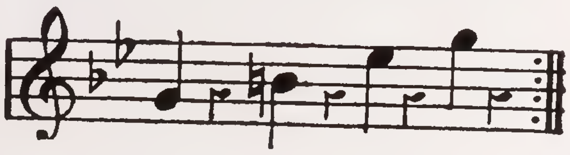
41


42


43


44


45


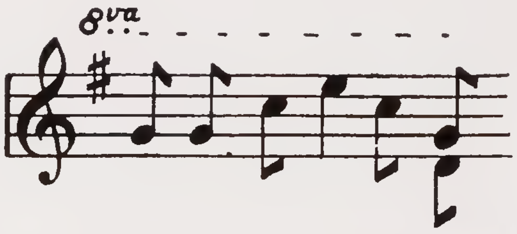
46


they are sung by a tui or by a bell-bird—they have so many notes in common. The usual notes of the bell-bird are characterized by their speed of utterance, corresponding with the vivacious movements of the bird itself.

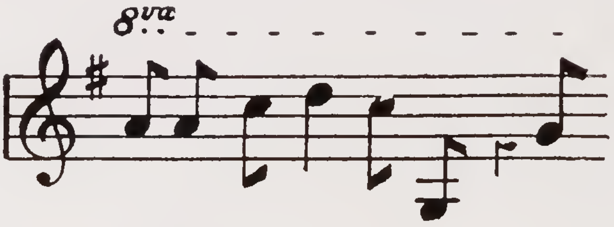
The day-chime of the tui at Stony Bay, Banks Peninsula, heard in December, 1910, was a charming phrase. The usual song was as in (47), the last note varying to the extent indicated, the whole occupying a second and a half in utterance. The phrase had a delightful sway and swing, and the notes were pure bells: it was much varied. Often, the concluding *g* was dropped an octave below the ordinary *g* in alt., a fact that was made quite evident when the ordinary *g* followed, as in (48)—a most beautiful variation. The concluding *g*, too, had a sound like *gug*, but was nevertheless clear and bell-like. It sounded curious to hear the gutturals breaking into the chime,—as though the bird were clearing its throat,—especially curious when the guttural was actually followed by the note rounding off the phrase as in (49). Many variations were heard on the one day, some less definite than others, and it is impossible to describe the charm of these pure notes ringing through the over-canopied pillared aisles and apses of the quiet bush.

Besides the ordinary, loud-sounding song, some birds, probably all, have a whisper-song, sung very softly in the throat. The usual song of the starling is largely a whisper-song; that is, excepting a few loud whistles and cries, and imitative sounds, most of the notes seem bubbling or whispering in the dilated throat, and are barely audible. I have seen a caged thrush singing a very low-voiced whisper song to himself. It is a different song, too, from the croodling whispers of the hen bird to her nestlings; even the noisy kaka has a delightful croodling song. The tui and bell-bird have a wide series of these whisper-songs, which are interspersed with their ordinary songs, but are so faintly uttered that some people never hear them at all: they may see the bird singing but cannot hear a note of the song. A short strain of whisper-song following a modified call, is shewn in (50). This song was recorded in Stony Bay, in December, 1908, and was the first whisper-song noted; probably the concluding notes should be marked yet an octave higher. The bird uttered the opening notes with neck outstretched and

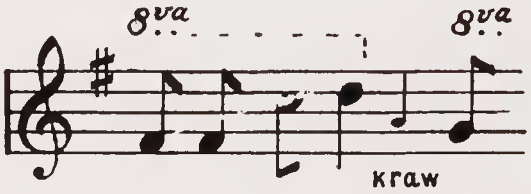
47



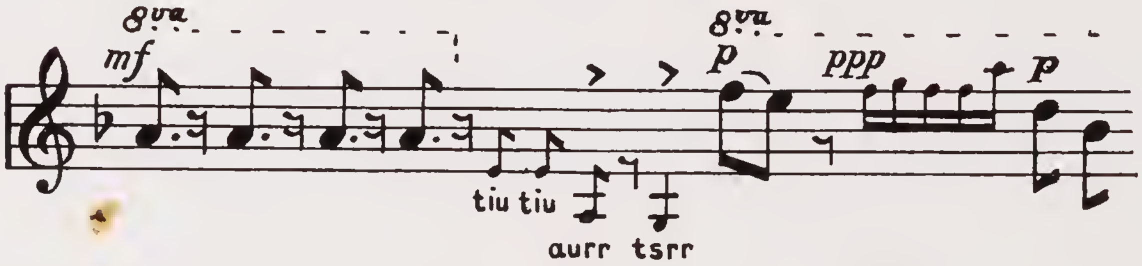
48



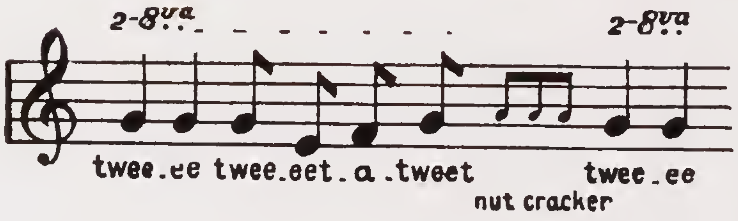
49



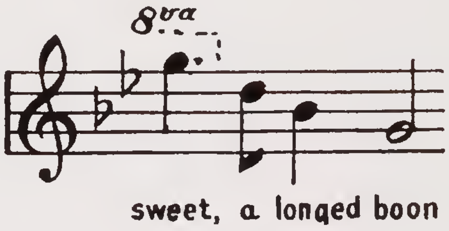
50



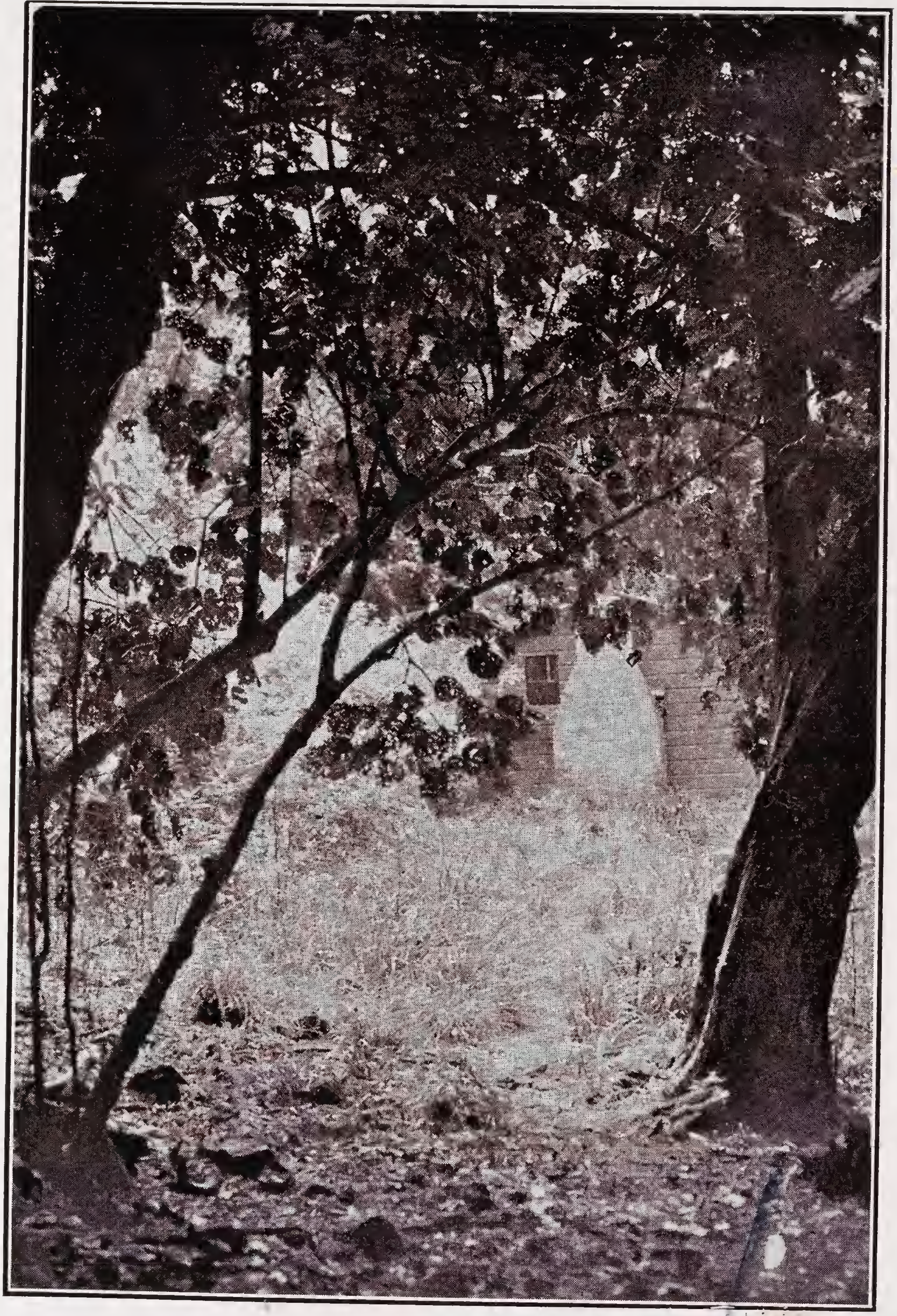
51



52



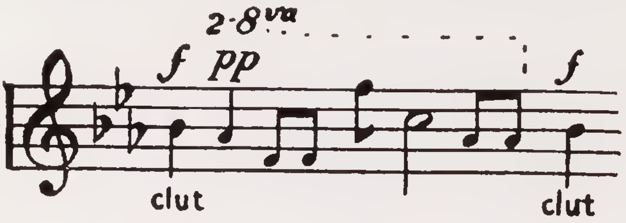
bill half open. The sounds *tiu tiu aurr,* which this year took the place of *kree kraw krurr,* were very quickly uttered; alone at times, and varying in number. They were very emphatic, and one would suppose they must rasp the bird's throat to pieces. The *tsrr* had the sound of a corkscrew being forced through a new cork. The high, sweet, slurred note, sometimes sung by itself, was followed by the very soft, melodious phrase, which bubbled, like honey transformed to sound, in the throat of the bird, so softly that it could be heard only when comparatively near the singer;—some thirty feet below it. I several times heard this theme at full length, though more often it broke off with the *tsrr,* or with the slurred note. In 1910 (51) was noted, the vocalized whisper-song being broken by another of the tui's strange expletives;—the sound on this occasion could well be represented by the words *nut-cracker.* Instead of the expletives thus breaking the song, an explosive note might take their place; a sweet loud note, an octave lower than the whisper-song. This would burst out as though the bird were not altogether able to repress the song. In January, 1912, the tuis in Stony Bay were most lavish of these whisper-songs and of love-songs. The notes of (52), which instantly vocalized *sweet, a longed boon,* were the prelude to an exquisite bubbling whisper-song. The bird sat high in the sunlit head of a giant totara; I sat in the shadow at its foot. When not singing the delicious theme of (52), which was repeated over and over till one supposed all obduracy must be melted away, he was song-bubbling to himself, or to a hidden mate, in an inarticulate and barely audible ecstasy. This subdued throat-rapture was so soft and so varied, and the notes so rapid, and broken in interval, and again so runningly blended in whistles, sighs, clucks, and constricted sounds, that I could note nothing definitely, and the song could only be likened to a light and liquid fall of music from the bell of a convolvulus. I have been able to record little of this superb music; nothing but fragments, here and there, of the more definite snatches. The song (53) opened and closed with a sharp *clut,* sounding like the opening and closing of the mechanism of a musical-box. The phrase lasted a little over a second. The

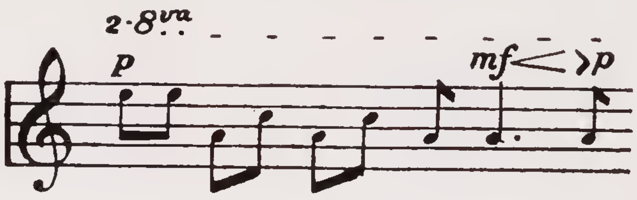


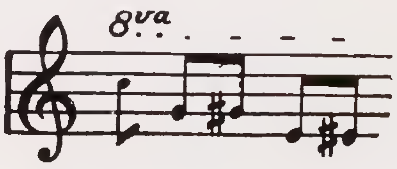
[Wel . photo

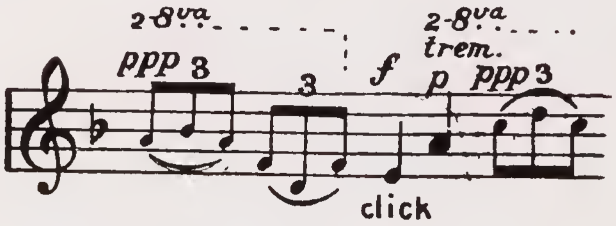
Edge of kohekohe glade at Waterfall, Kapiti.
Slender trees in foreground are kawakawa.

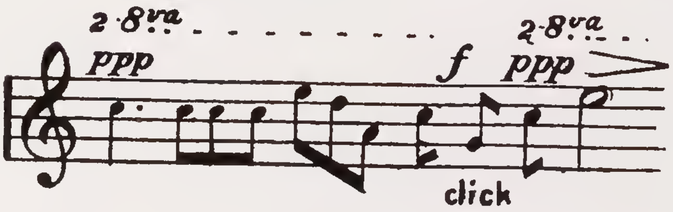
song (54) sounding almost like a peal of tiny mellow swiftly swinging bells, took under two seconds in utterance: in this, as in others, the sequence of the notes constantly varied, but so many of the themes are so definite that there must be scores or hundreds in the bird's repertoire, unless he is a consummate extemporizer, able to remember his intricate extemporizations. The phrase (55) was almost a bell-jangle rather than a whisper song, the latter being an octave higher in pitch than the former. This theme was heard a great many times, and many of the others were repeated so often as to become quite familiar.

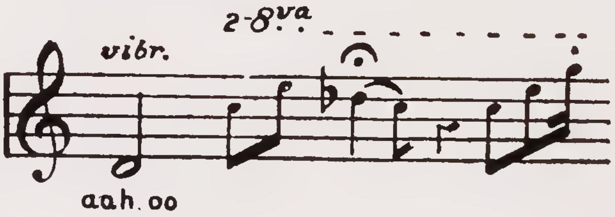
53


54


55


56


57


58


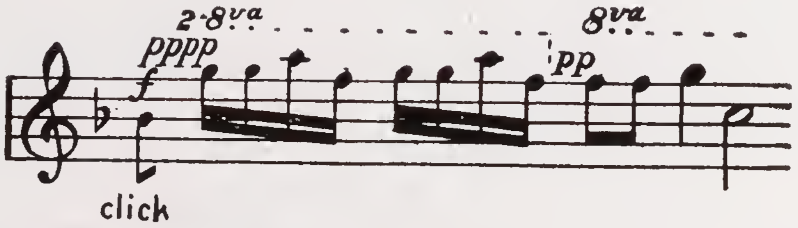
In (56), a beautiful phrase, there was a curious click up to the *a*, which was a sustained tremolo.

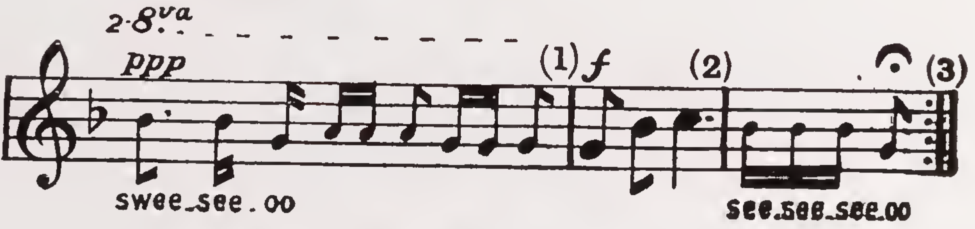
There was a similar final note in (57); it sweetened and died away into silence. In this song the click, like a sharp catch in the breath, broke into the song.

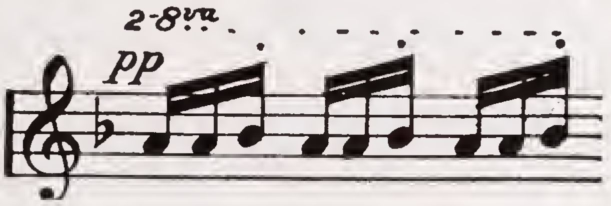
The opening note of (58) was extremely peculiar, and was heard only on this day, 2nd January, 1913. It was *aah-oo*, breathed only, with vibrating uvula;—exactly like a gargle, in fact as if the bird's gargle mellowed its throat for the song following. The last note was most staccato, being barely touched. They were usually sung very quickly—from five to ten quavers a second. Were it not for the fact that many of them were often repeated, one would almost suppose the songs to be beyond the bird's volition; they were like an escape, a running over, from a full treasury of sound-jewels.

This year, 1912-13, the tui, whilst singing many beautiful short themes, whisper-songs, jangles, and runnels, seemed rather *preparing* for song; for he emitted more *clicks, clacks*, and *gurrs* than musical notes, sounding like the snapping and intermittent whirring of clockwork, as though his musical-box had been undergoing seasonal repairs, and was being tested principally as to its mechanism.

The theme of (59) was heard in December, 1913, and again was only part of the song heard. The latter part was lower in pitch, more deliberate, and much louder, or rather much less softly sung, than the opening. The theme occupied about three seconds in utterance. The whisper-song seems a much greater effort to the bird than the ordinary song: in this one the head was thrust well out and upwards, the feathers quivering round the whole throat and neck, and down to the breast; the beak was partly open at times, at times closed.

59


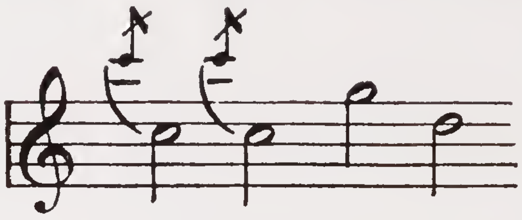
60


61


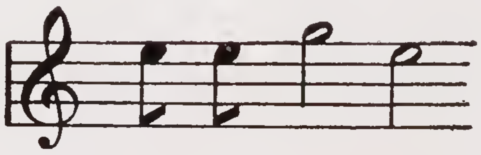
The song (60) was heard at Kapiti in January, 1917. It was broken by the ordinary call, more reedy than bell-like, best reproduced, perhaps, by a clarinet. The whisper-song was nearer a warble than whistle or flute-note. The bird sang whilst a gale of wind swayed the karaka in whose branches he sat. The song was long-continued, the parts varying in position, as 3312333213223: the tempo was about eight semiquavers a second.

Many charming incidents of bird-life are seen whilst sitting below the great trees. The tui uses both the whisper-song and the ordinary calls when wooing. One day I saw two birds in a totara, one wooing and cajoling the other. He sang the beautiful chime (47) close to the ear of his companion, following it with the high soft notes of (61). This he sang in very subdued tones; and as the silent bird retreated, the other, singing and wooing, followed flutter by flutter over short distances along the bough. His cajoling was, however, unsuccessful so far as my observation went; for the one so sweetly persecuted flew off, though not unfollowed. On another occasion I saw two tuis singing a duet. The full bell-notes of (62) and (63) were sung, varied in several ways, the short initial notes reminding me of a swinging creaking signboard—if the creak could be sublimated into music. The *g* was often the vibrato note, sounding like a bell struck quickly with a wooden mallet. Both birds sang the four notes, now alternately, now together, in perfect tune and time. I have also seen the singing of a duet by a tui and a bell-bird. They sat not far apart on the same branch, and the tui would beat his four or five bell-notes followed by the gutturals *aurr aurr*. Immediately on his concluding the bell-notes the bell-bird sang her phrase, the *aurr aurr* of the tui forming the undersong to her notes, the result being as in (64). This was repeated several times, the bell-bird now and again allowing the *aurr aurr* to go unaccompanied.

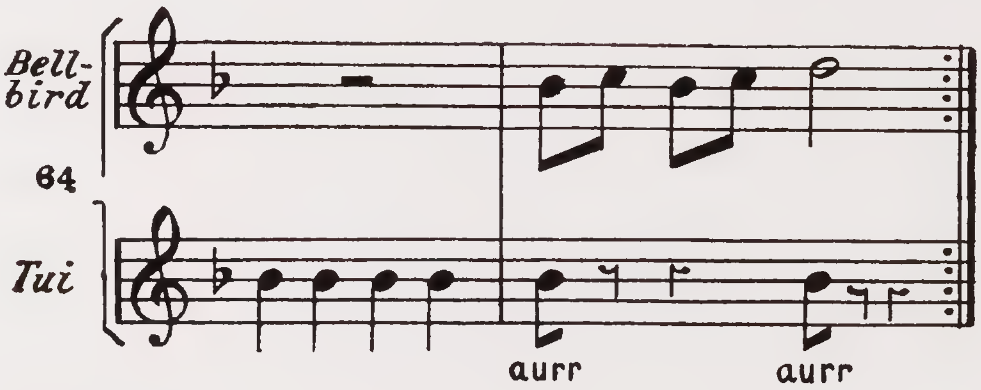
62



63



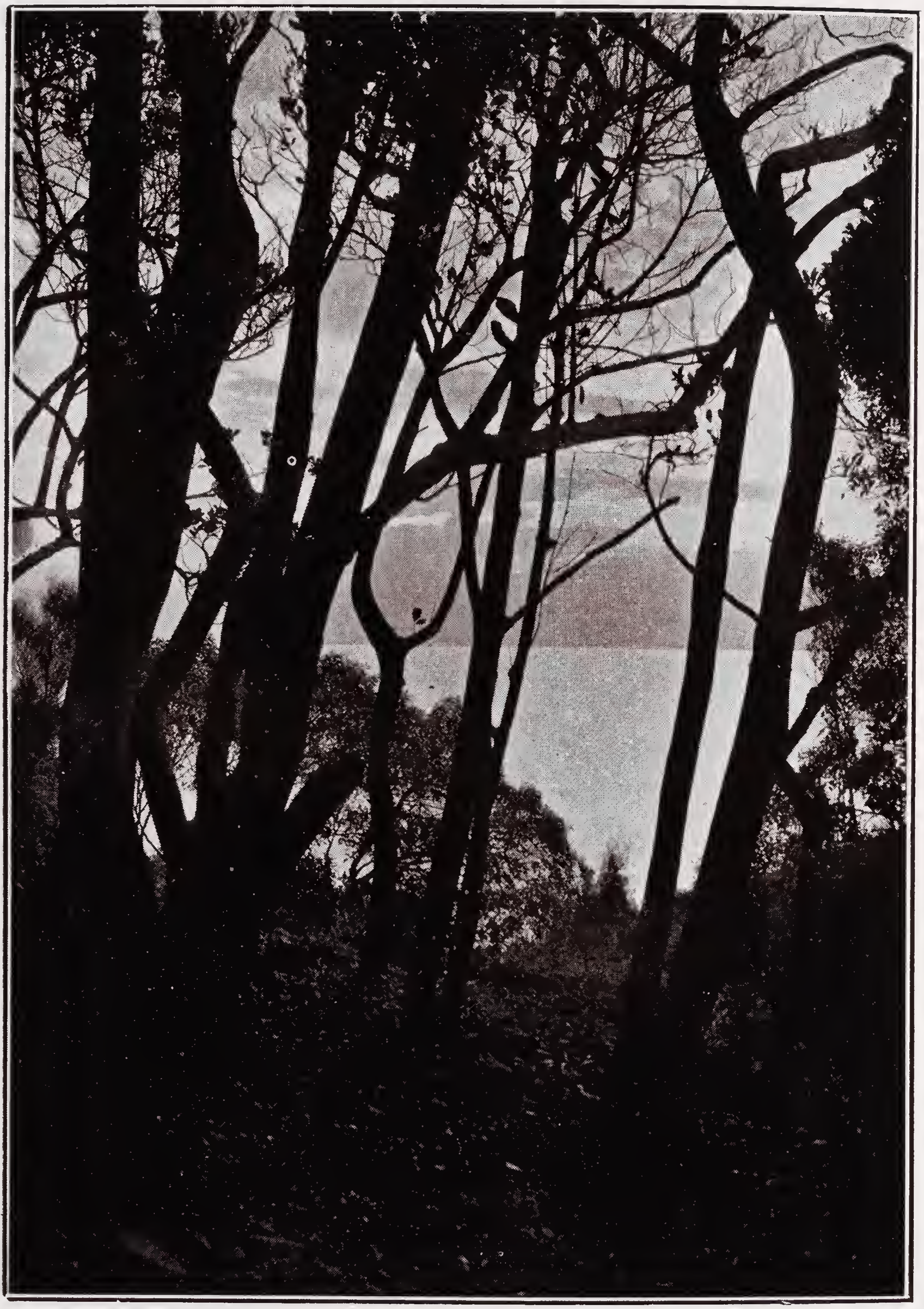
64



There is no doubt that the tui is able to imitate not only other birds, but all manner of sounds, and does do so; but he resembles Shakespeare and his wood-notes wild in this,—that whatsoever he borrows he makes so entirely his own, that it becomes more than mere imitation. Even when imitating human speech he adds embellishments.

The tui seems to be the last bird to make himself heard in the nightfall. One particular evening in midsummer, December, 1910, I sat at the edge of the bush at Stony Bay listening to the vesper-bells of the tui. One might almost suppose it a curfew; for at eight o'clock all was silent in the shadowy vale. At a quarter past eight a love-dreaming tui called, and broke into melody, the first notes slurred, softening away into the sweetness of the bubbling whisper-song. A bird answered with *g c g e d* from one part of the shadow, and from another came the *kree kraw krurr,* as of some listening humorist. Another chimed, and that was the last bird-sound from the bush. Moths had begun fluttering in the deepening twilight, and beetles low in the luxuriant cocksfoot and fog kept up a most insistent under-hum on *f* (bass), some flying high and tapping on the leaves of the quiet trees. A few drops of rain fell, and few as they were, their beating on the thousand leaves emitted a faint murmur as of wind. The leaves were unruffled; there was no wind whatever. At 8.35 came the first cry of the ruru, and at at 8.40 a weka prophesied rain, which came before morning.

As he is the last bird to be heard in the evening, so is he the first in the morning; though in the old days it was the kaka that harshly called the bush from sleep. Far from harsh is the morning-call of the tui. Captain Cook's description of the song before dawn has been quoted; and I was at Kapiti, first in December, 1916, and January, 1917, and many times since, in the hopes that the song he heard at that time of the year over a hundred years ago in Queen Charlotte Sound, I might hear on the opposite side of the Strait at Kapiti. I heard the song, but only as the ghost of the echo of the great harmonious chorus it must have been. At about three o'clock in the morning, whilst darkness was still deep, came the common call (26), repeated at intervals, one bird starting, another replying from a distance, and another, till the dark wooded hill-sides and valleys seemed peopled with musical

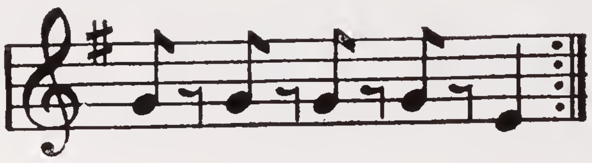


[*Wells, photo*

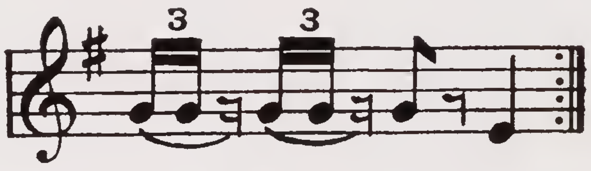
Dawn at Kapiti, looking eastwards towards mainland: just after the time of the morning chorus.

disembodied voices. On the 29th December, 1916, after four or more birds had thus been calling for about ten minutes, a bird would begin the beating theme of (65), varied as in (66), where the place of the rest in the triplets would at times be taken by the third note. In the darkness of the morning the sea looked deep blue, almost black, and it broke in a low murmured sound along the heavy shingle shore. There was a faintest line of silver above the hills of the mainland to the east, and above the silver hung the morning star, Venus, a great globe throbbing with rosily-golden light that continually seemed on the point of over-flowing in drops of flame. Later, at nearly four o'clock, when Venus had shrunk and dimmed to pale gold in the broader upbeaming light of dawn, several birds sang (65) and the variation (66). The sound was half bell, half flute, and though several birds sang, as could be heard owing to the different birds dropping to *e* at different times, and varying to (66) at different times, the result was quite harmonious. The common call continued to be uttered at intervals during the harmony. The chorus was fuller on the 2nd January, 1917, when the call was a variation of (26). Other birds joined in, and began the chorus, the first notes being those of (65), excepting that *d* took the place of *e*. At times one bird uttered *tiu* instead of *d*, and at times lagged behind a little when singing the *g*. Another birds joined in on *c*, in a much higher, thinner tone than the rich bell tones of the others. The effect was as shewn in (67).

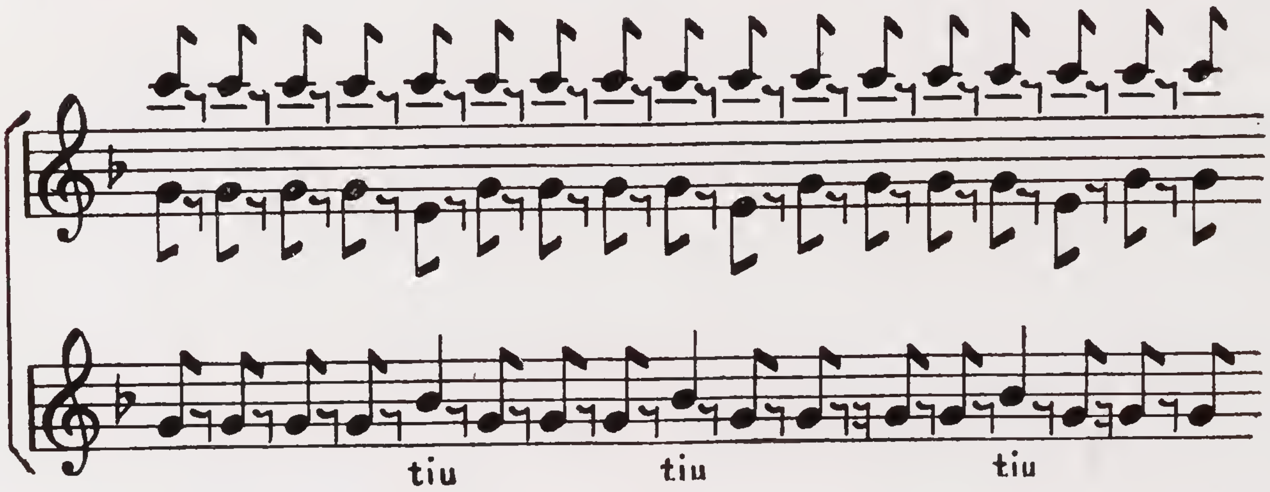
65



66

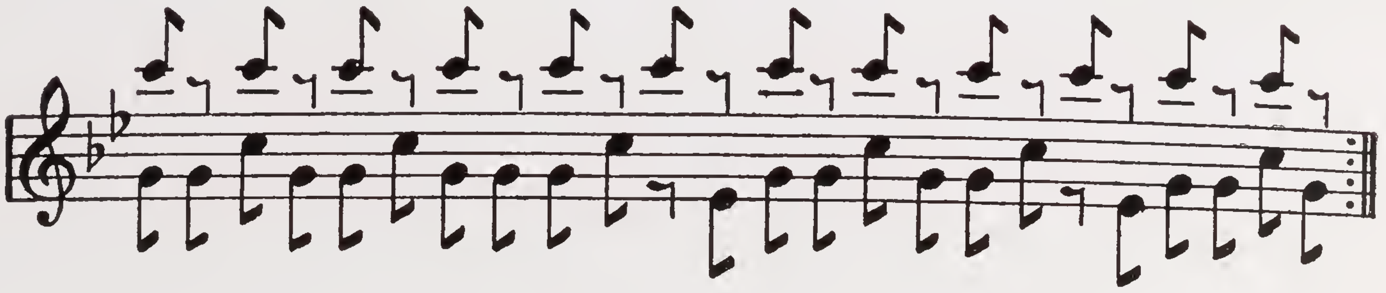


67



The top singer occasionally fell out of time in the same way as the bottom singer, but the time was always caught again. This was varied on the 4th January as shewn in (68).

68

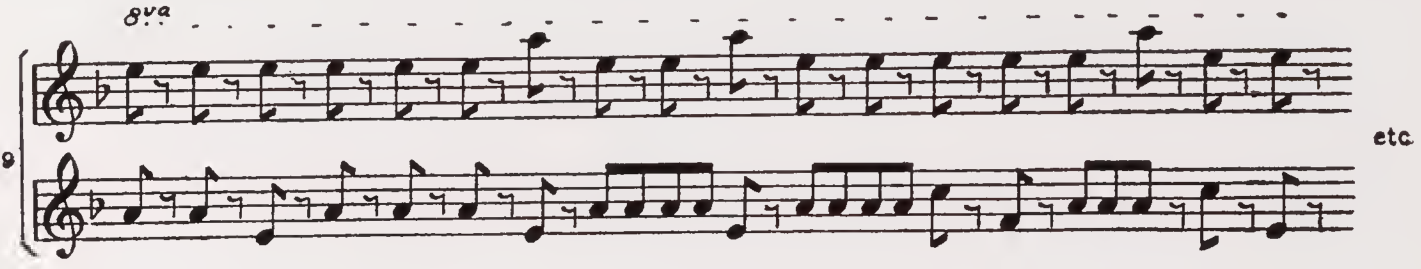


This was very beautiful, and apparently no more than two birds were singing, though a third made a sort of bass accompaniment with *tiu tiu* uttered at intervals. The lower notes were rich, deep, and bell-like, the higher thinner, whilst still bell-like in quality. Their high pitch was quite evident when heard in contrast with the *c* of the lower voice. Whilst a great many birds might be singing at one time, they appeared to segregate into parties of two, three, four, or five, the song of each party or choir being in harmony, whilst it might not exactly harmonize with that of others. The time, too, was practically exact. At dawn the other birds also joined in,—white-heads, fantails;—and an English lark was heard among the others. Whilst the song of these did not altogether harmonize with the larger birds, the wild chorus resulting was by no means unpleasing. It was impossible to say if the singers were tuis or bell-birds; the notes were common to both; but the harmonies are considered with the song of the tui since the call-birds certainly were tuis, and most of the calls ceased on the bell-notes beginning. On the 8th January the birds were singing in four, sometimes five parts.

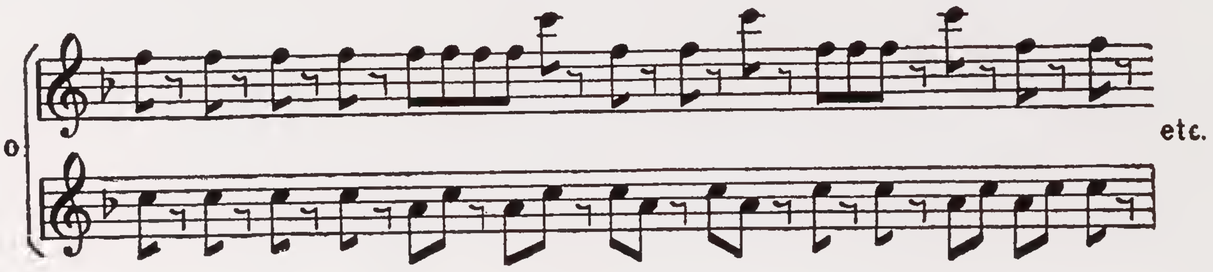
Two other duets recorded on the 10th and 13th January are here noted, the second being particularly beautiful when heard in the quiet of the early dawn, (69) and (70).

The songs were continued indefinitely; no repeats of parts that I could detect; each bird apparently sang *ad lib.* There were other singers when (70) was noted, but the ones that sang (70) were the chief performers among those in the immediate neighbourhood. The tone of the high singer sounded *very* high, almost squeaky, especially when the high *c* was taken, yet it was musical. As usual, the ordinary calls came first, gradually ceasing as the chorus progressed. The moon, three days past the full, was high over the bush, shining silver through driving clouds; the hills of the mainland were misty-blue, the sea leaden, There was a chrome light over the hills, deep in colour along the tops, and paling away to where floated a few stratus clouds indigo in colour; the upper sky was rippled like a rugosa paua shell.

69



70



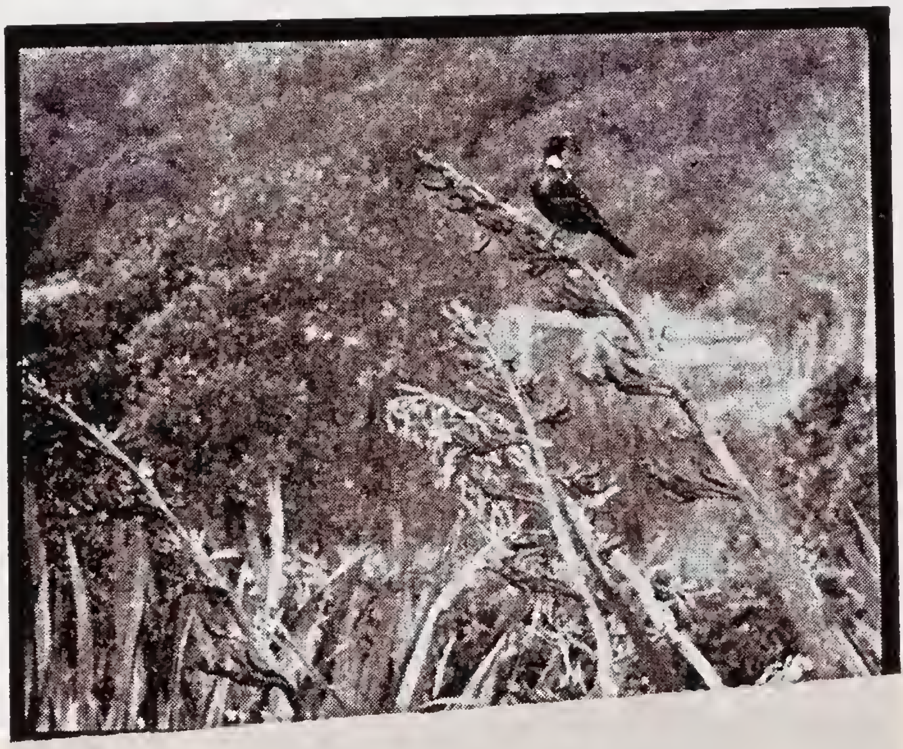
On the 16th January I went over the spur to a neighbouring valley, to hear the morning song there, but it was not so good, fewer birds singing,—it may be because it was a windy morning. The call was the usual one, starting about three o'clock, and when the chorus began it was carried on mostly in the high pitch, sounding like tiny, light-sounding bells, some almost shrill, but so softly sounding that, like the unharmonious upper partial tones, they gave character to the chorus rather than discord.

The young apparently do not learn to sing by listening only; for though I have not personally seen the teaching, I have notes from a correspondent who has seen it on two occasions. On the first occasion there were two young birds: the parent sang a single note; the young birds, with a ruffling of feathers, tried to imitate it, succeeding but poorly; the parent repeated the note, clearly and deliberately. The young ones were very unwilling, and after their poor efforts flew off. The parent followed, however, sat above them, and repeated the lesson. Finally the young ones flew off in different directions. The lesson was given within a few feet of the observer. On the second occasion only one young one was being taught. Its imitations were much better and it appeared more docile. It is a far cry from a tui to a sea-gull, but apparently even that unmusical bird needs teaching; for Mr. J. L. Bennett, late caretaker of Kapiti, has told me of a "singing lesson" (as he supposed I would call it) he witnessed on the beach; an old sea-gull teaching a young one the proper use of its voice.

I am pleased that our tui should be the first of the Maori birds to stand for his cinema-portrait. The illustration shews him arrested in his sipping of the honey of the flax-flowers by the clicking of the machinery. A few seconds' observation reassured him, and he resumed his rifling of the flowers. He has paid the price. He is immortalized.

The boldness of the tui, his beauty, his eloquence, his gestures, his mimicry, made him a great favourite of the Maori. He appeared to become reconciled to captivity, and was taught speeches of welcome;—he was also said to indulge in impromptu speech-making. There was a proverb, applied to a good orator, "*Me he korokoro tui*" (CK, p. 68). "How eloquent he is; he has the throat of a tui." In the song of the tui, it was the words rather than the tune that appealed to the Maori;—the vocalizations rather than the intervals; and this fact explains preference of the jews' harp by the Maori as a musical instrument;—it could be made to speak. An expert player would tangi on his instrument, and after hearing the tangi two or three times, his hearers would be able to repeat, almost word for word, the thing he intended to say. Hence the narrow range, and the quarter-tones in Maori airs; the tune is hardly more than a speech tune. So in the song (52); the vocalization, "Sweet, a longed boon" adds a wealth of feeling that does not lie in the mere melody. "The very words of Sappho," says Swinburne, "were heard and recognised in the notes of the nightingale." (SCP, p. xxi.)

The following from Grey's "Poetry of the New Zealanders" (quoted in BN, Vol. 1, pp. 96-7), is a speech taught to a tame tui,



Sweet, a longed boon.

85
136 "Me he korokoro tui — How eloquent he is: he has the throat of a tui." In the song of the tui it is more the words rather than the tone that appealed to the Maori; — the vocalization rather than the intervals; and this fact explains the preference of the jews-harp by the Maori as a musical instrument; — it could be made to speak. An expert player would 'sing' on his instrument, and after hearing the 'songs' two or three times, his hearers would be able to repeat, almost word for word, the ditty he intended to sing. Hence the narrow range, and the quarter-tones, in Maori airs; the tune is hardly more than a speech-tune. So in the song (5.2) the vocalization "Sweet a longed boon" adds a wealth of feeling that does not lie in the mere melody. "The very words of Sappho", says Swinburne, "were the notes of the heard and unimagined nightingale." (B-S. 136)

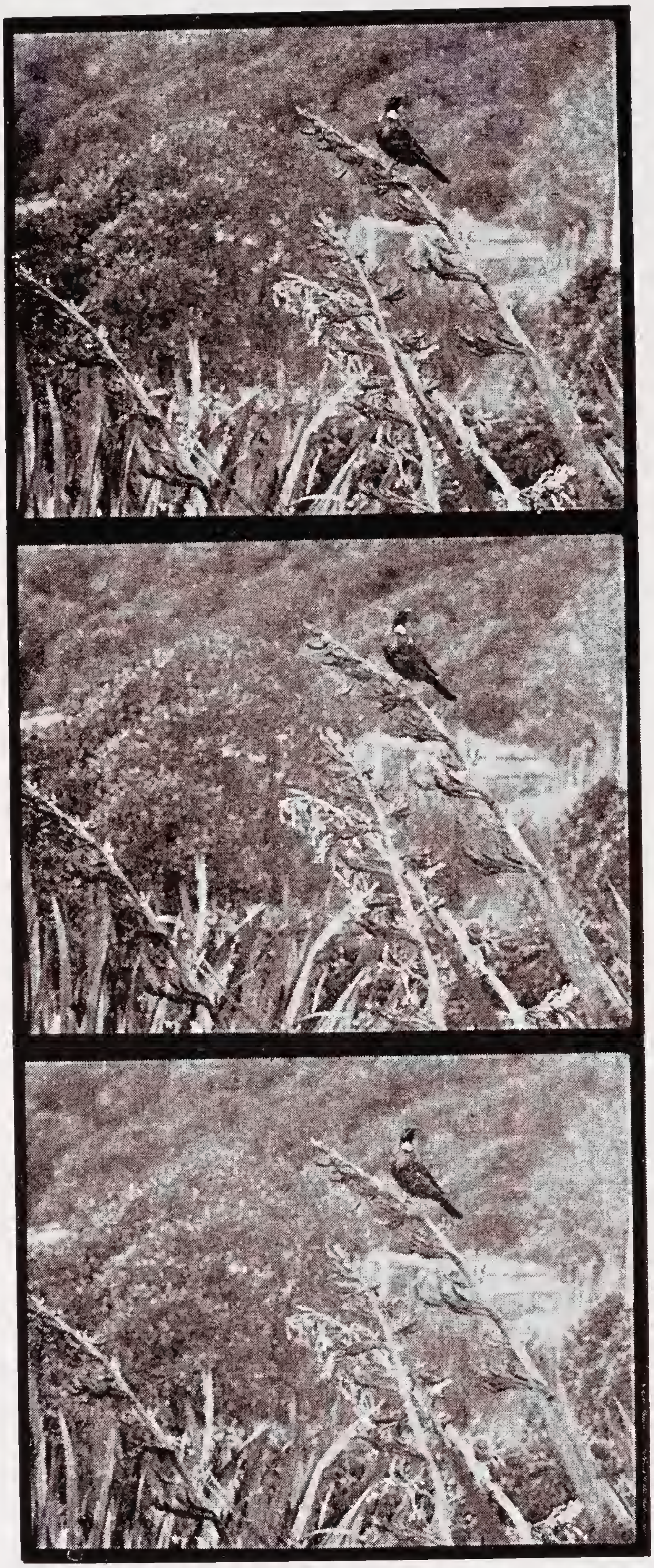
A long tui 'soliloquy' . Maori words B. S.
|| (137) par 2 worth copying? p. 139 ✓

ever, sat above them, and repeated the lesson. Finally the young ones flew off in different directions. The lesson was given within a few feet of the observer. On the second occasion only one young one was being taught. Its imitations were much better and it appeared more docile. It is a far cry from a tui to a sea-gull, but apparently even that unmusical bird needs teaching; for Mr. J. L. Bennett, late caretaker of Kapiti, has told me of a "singing lesson" (as he supposed I would call it) he witnessed on the
ld sea-gull teaching a young one the proper
use of

I am
to sta
arrest
clicki
him,
price

Th
his
appe
spee
spee
"*M*
has
rat
tio
of
co
in
h
h
t
S
a

With several good photos
of million years old
monsters long extinct but
still dumbly speaking
through the eyes. We do not
know what their voices were
like.



[*J. McDonald, photo*

Cinema panels of tui on flower-stalk of harakeke (New Zealand flax)
Muritai, Wellington

each sentence representing one of the many tui-phrases. The appearance of visitors always caused a stir in a Maori kainga, or village, and in this stir the tame tui took part, speaking in a subdued, quiet voice, never screeching harshly like the parrot. His speech is partly welcome, partly in the nature of a soliloquy; he is pleased to see the visitors, but at the same time wonders who they are, and whence they come:—

	Translation by Henry Stowell.
Ko Tu koe?	Art thou Tu? (The god of war:—Comest thou in wrath?)
Ko Rongo koe?	Art thou Rongo? (Lord of peace and plenty:—Comest thou in peace?)
Ko te manuwhiri.	It is the guest.
Nau mai!	Welcome!
Moemoetia mai te kuri.	Sleep with the dog. (Kill a dog in their honour)
Haere mai te manuwhiri!	Welcome to the guest!
No runga te manuwhiri?	From the south is the guest?
No raro te manuwhiri?	From the north is the guest?
No te ti?	From somewhere?
No te ta?	From anywhere?
No waka i - o - i?	Perhaps he has come by canoe? Queries unanswered! (Silence means non-enlightenment.)
Tupu wananga!	Ah! they speak now in oracles! (Wananga,—on the descent, etc., of man)
Ki Hawaiki!	About Hawaiki! (The mythical home of the race.)
E roro!	What wonderful lore and knowledge.
Ki-tahi! Ka tu ke! He!	An apt proverb! It stands apart! O joy!
Ko wai-wai?	Who can he be who is speaking?
Korero-rero!	Speak on (master!)
Ka kore-kore te toki!	What a tongue, to be sure! (Toki, an axe for tongue.)
Te Whare-pa-tahi!	(As that of) Whare-pa-tahi!* (A notable expounder.)
Te Whare-pa-rua!	A second Whare-pa-tahi!
Te hui te rangiora.	A recital of the divine history of man.
E roro ki waho.	Impart thy lore to me.
Ko Tu koe?	Art thou Tu?
Ko Rongo koe?	Art thou Rongo?
Ko tenei te manuwhiri!	This is the guest!
Nau mai!	Welcome!
Kahore te kai i te kainga.	There is no food (fit for you) in the village.
E Rongo!	O Rongo!
E Rongo!	O Rongo!
E Rongo! Maru! Awa!	O Rongo! Maru! Awa! (calls on ancestral deities to provide abundant choice food for the guests).

---

*Whare-pa-tahi was a wise man of ancient times who taught the division of the year into twelve months, instead of ten. See J. White, *Ancient History of the Maori*, Vol. 2, p. 128.

He aha te tai?
Ka timu te tai.

Nga tai o te tu!
Ko waka rara.
No tau na.
Ma nga wai
E tari taua.
E tai.
Homai te wai.
Ka hi te kai.
Ka whakarere te kai.
E kai!
Ari nui!
Ari roa!
Ari manawa-nawa!

E Titi-rau-ma-ewa!
E to kai moana!
E roro ki waho!

How fareth the tide?
The tide is ebbing. (Sea-food, dear to the
Maori, will be provided.)
Tides which provide abundance of food!
Yonder are the canoes.
Which secure food during the year round.
The waters shall
Bear us two along—(to the fishing grounds).
O tide.
Give us of your waters. (Be propitious)
We fish the foods.
Abundantly, even to wasting of it.
Eat of it then!
It is plenteous!
It is lasting!
It causes anxiety (when not abundantly procurable!)
Thanks to the female sea-deity!
Thanks for thy sea-foods!
Impart thy lore to me!

The bird might choose any of these phrases, repeating them haphazard or according to fancy, but at times, such perhaps as those when the poroporo berries made him talkative, he would go through his repertoire in one effort. He seemed, apparently, to introduce some of the quality of its characteristic expletive *tiu tiu* into his conversation, for Henry Stowell, who made the above translation, remarks, "what struck me about the speaking mode of the tui was its sibilancy, as,—*chenei che manuwhiri,* and so on," instead of *Tenei te manuwhiri;* but "every word which a taught tui spoke was clear and understandable." He took down, in 1888, an *original* speech of a tui from the lips of an old man of Wairarapa. "The people," said he, "were about to flee at night. The war-party became aware of this through the speech of a tui. It made but one speech, this is it:

'Moe araara, moe araara,
Ka tau te manu ki runga o te pae;
Ko-wheri, ko-whera,
Ka tiritiri, ka rearea;
Ka taka mai a Tu ki toona.
Hiwa! kia hiwa!

Sleep wakefully, sleep wakefully,
The bird settles upon its perch;
(They) are opening out,
(They) are scattering abroad;
Tu (the war-god) had better come along for his own.
Be alert! be very alert!'

But here,'' says my correspondent, ''the bird recedes into the region of the oracular and the mythical.''

Henry Stowell states that when the tui chorus is to be sung, the signal is made by the female. ''In a tui-grove a little after four in the afternoon, the quietness is suddenly broken by the female tui uttering *kru-u-ru-u-ru,* after the manner of an in-drawn gurgle. There is then perfect silence for a few moments, and she begins the same gurgle again. The very instant that she makes the second beginning every male, and no doubt female, tui in the grove bursts into a wonderful wealth of tui-harmony. Folk may speak of the delights of an early morning concert. There is largely an outside element in such, for every bird in the woods contributes its part towards that universal hymn to the sun, or to the god of day. But for pure tui music nothing can possibly compare to this evening-song; no other birds join in. As to solo singing, as far as my experience goes the same may be said. The most beautiful solo that I ever heard from the throat of a male tui, was an afternoon solo. I listened for upwards of half an hour to that glorious melody. I gathered that he was singing for a mate. He was quite alone in a detached piece of bush, on the topmost branch of a decayed pukatea tree, some sixty feet high.'' I have never heard an afternoon-chorus, even on Kapiti where the birds are in great numbers, and where the morning-songs were recorded.

The tui has been called the Maori barometer; for from the variations in his song it is said that the Maori was able to foretell the weather. I have not heard any details of the various prophesying.

The Maori name of the tui shews little variation: the bird is known practically throughout the islands as tui. The names parson-bird and mocking-bird, given by early colonists on account of its appearance and its powers of mimicry, have both given way to the Maori name. The following are hardly variants; they are names given to the two sexes, or to the bird in different stages of growth, or for difference in condition

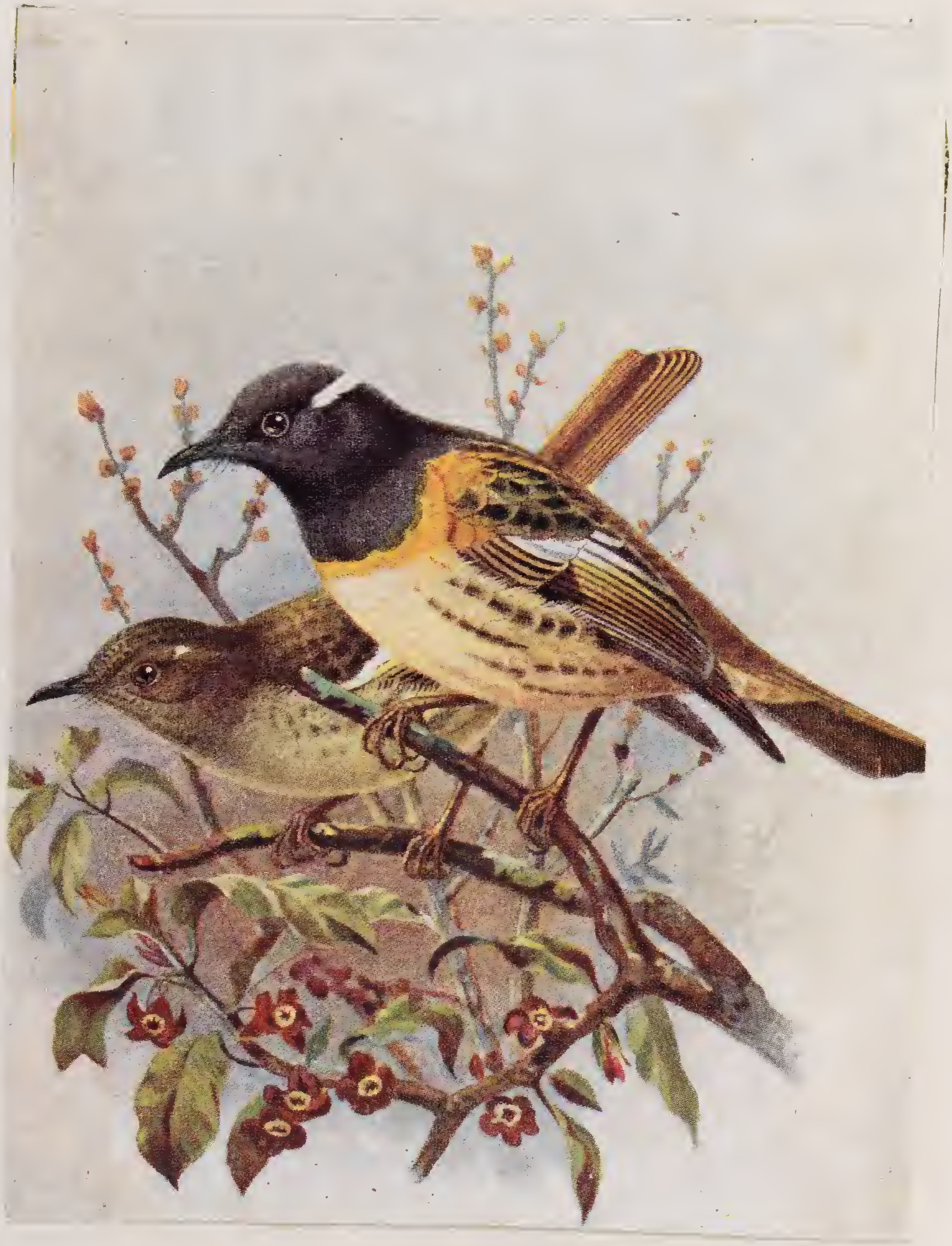
(WJ, p. 199):—Koko (when fat), kukari (young), pikari (young), pitui (young), takaha (m.), teoteo (f.), tute (m.).

The tui becomes extremely fat in winter; and when so fat as to be uncomfortable, it was said to peck its breast, allowing the oil to escape. The feathers became saturated, and were then of no use for knotting into the woven flax cloaks. When caught in this condition it was often found to be covered with the marks of the pecking, acquiring from that fact the name koko, or pecking (TI, p. 401). Kukari is a name for young birds generally; so too is pi, whence pitui simply means "young tui." Teoteo, a name applied to the female, is also the name given to a small species of shag. Taylor gives further details (TI, p. 402)—"the unfledged bird is called a pi, afterwards it is named pikari, and when fledged a purehe. But full-grown, it is a tui, and when it becomes very fat, it is a koko." Stowell, on the other hand, says that the name koko should be applied only to the *speaking* tui.

The tutelary deity of the tui and other black birds was Parauri; but when fat its tutelary deity was Urutahi. This deity was also said to be the mother of the tui by Tane, at the time that god's creative power was finding outlet through various powers of nature. In one legend Tane is said to have obtained the tui from Rehua, lord of the tenth overworld, bringing it to earth and freeing it in his forests.

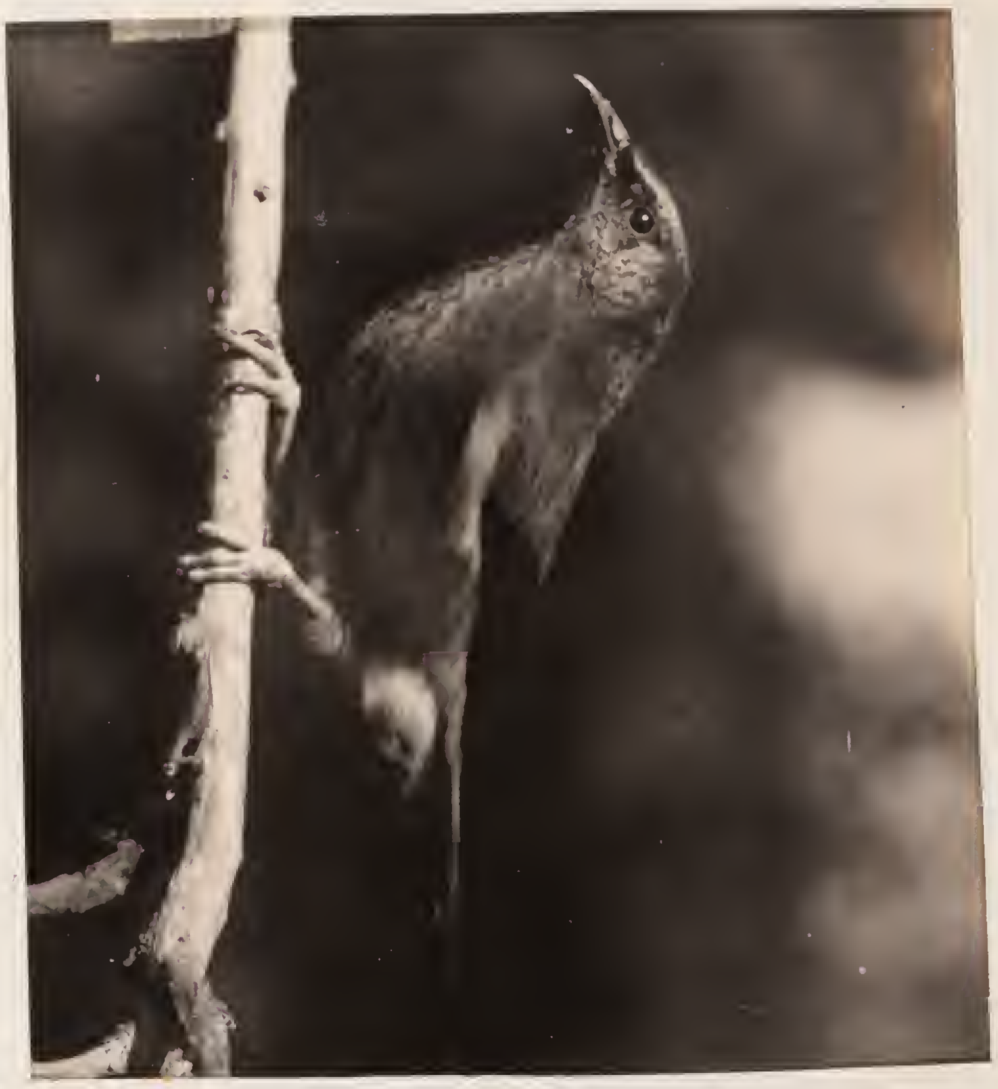
There has been great confusion in the collecting of the many Maori myths and legends: there existed side by side two versions,—the esoteric, reserved for the highest of the tohunga-class, and the fireside version, the one known to the majority of members of the tribe. It is this fireside version that has most commonly been collected, and it is the fantastic, often grotesque nature of these fireside versions that has led to much misconception of the Maori, and his mental and spiritual characteristics.

The stitch-bird.—Male, head and neck black, with a tuft of white feathers behind each ear. Breast and some of the wing-coverts bright yellow. A white band on the wings. Abdomen



brownish-white. Eye black. Female and young, brown with a white band on the wings. A few touches of white on the head of the female take the place of the tufts of the male. Bill brownish-black

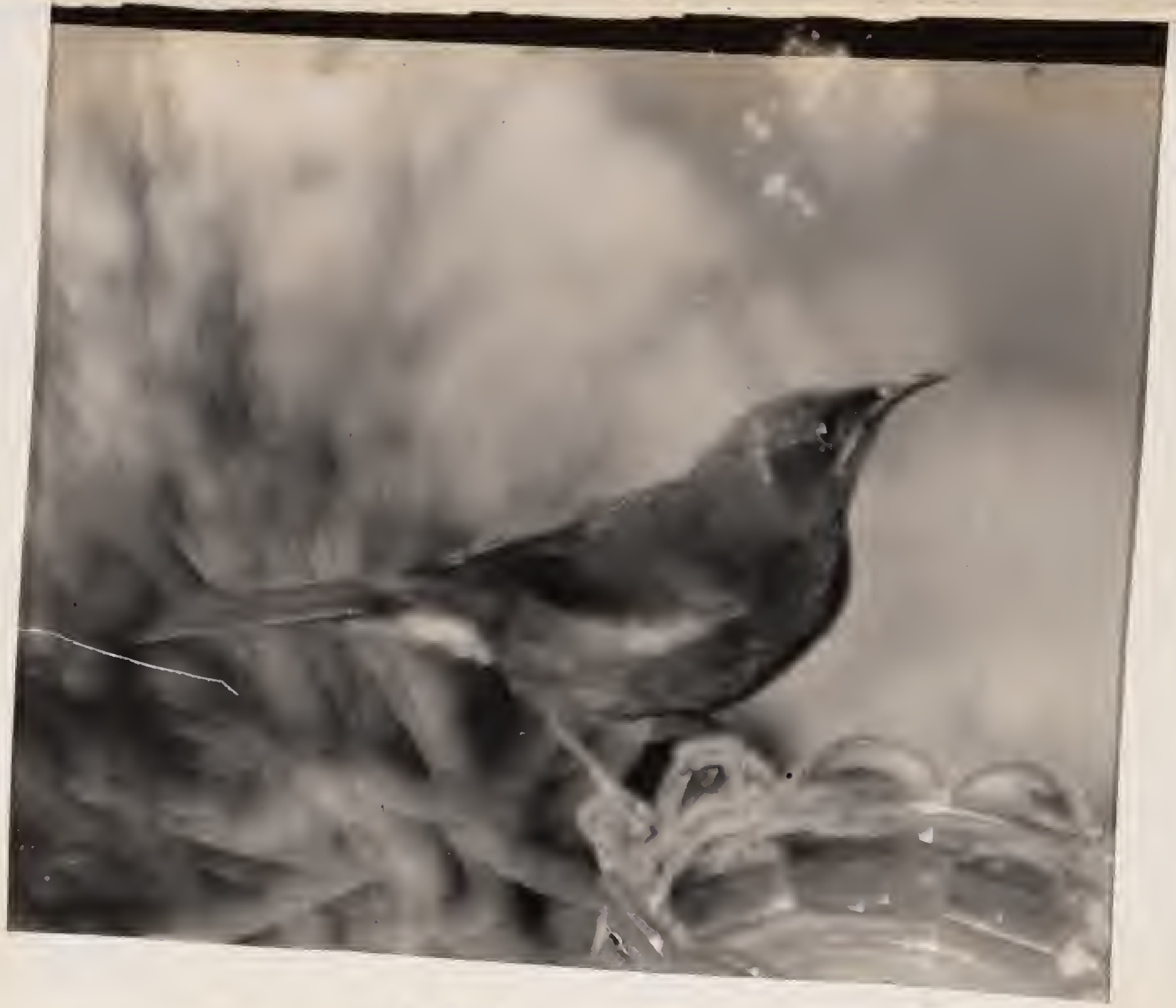
of



Male ~~korimako~~
BELL-BIRD

[illegible]

This is the last refuge of the species, and unless the strong hand of the Government is invoked for its protection, and that at once, the Stitch-bird will be lost to us for ever. Let us hope that steps will be taken



FEMALE

70 Grange
Mount

brownish-white. Eye black. Female and young, brown with a white band on the wings. A few touches of white on the head of the female take the place of the tufts of the male. Bill brownish-black; toes pale brown. Total length 8 in., of which the tail is 3 in.

Eggs.—Four; delicate white, sometimes flushed with pink; reddish-brown spots at larger end; sometimes only a few blotches, or fine hair-lines; rarely pure white unmarked. Length, about 1 in., breadth, $\frac{3}{4}$ in.

Habits.—The stitch-bird is peculiar to the North Island, and is another of the very rare birds of New Zealand. I have not heard its notes, nor have I seen the living bird.

A. Reischek writes (Tr. Vol. 18, 1886, p. 86):—"They appear always on the move, carrying their heads proudly, their wings drooped, and their tails spread and raised; and, at each successive movement, they utter that peculiar whistle from which the natives have named them 'tiora.' The female has a different note, sounding like '*tac, tac, tac*,' repeated several times." Reischek's observations were carried out on the Little Barrier Island, before it was proclaimed a sanctuary; and Buller wrote (Tr. Vol. 21, 1892, pp. 77-8): "That indefatigable collector, Mr. A. Reischek, spent a considerable time on the Little Barrier, and shot a number of specimens for local and foreign museums, but I was assured by him that he did not destroy them all; and I do not think any collector has visited the island since his time. There is therefore just a chance of saving the species by timely intervention." This report evidently seemed to do no more than make an opportunity for another collector; for, in the Transactions of the New Zealand Institute of the following year, Buller writes (p. 58):—"An Auckland collector has recently been on a visit to the Little Barrier Island for the purpose of getting specimens of this rare bird, several of which were obtained. This is the last refuge of the species, and unless the strong hand of the Government is invoked for its protection, and that at once, the Stitch-bird will be lost to us for ever. Let us hope that steps will be taken to save the Colony from this reproach." And this was written by a collector so inveterate that he could shoot the only pair of white-heads that he had seen for ten years. After his depredations on Little Barrier, too, A. Reischek had the hardihood to write: (Tr. Vol. 24, 1892, p. 87) "These very rare birds will soon disappear, even from these lonely wilds, owing to the domestic wild cats........" Buller (BN, Suppt. Vol. 1, p. xxxii.) states that Reischek and other collectors took about 150 specimens of the bird from the island before it was proclaimed a sanctuary.

Of the sixteen Maori names recorded (WJ, p. 199) the one most commonly in use is hihi. The name tiora, mentioned by Reischek above, is evidently a local name.

The tufts at the ears of the bird were given by Maui, after his snaring of the sun, which exploit has been related in connection with the kokako (crow).

The bell-bird.—Male, yellowish-olivaceous, the head tinged with steel-black. Wings and tail brownish black. Eye blood-red. Female and young, brownish-olivaceous; wings and tail brown; a white line from the bill towards the sides of the neck. The female is rather smaller than the male. Bill, black; toes, leaden grey. Total length of male, 7¾ in., of which the tail is 3½ in.

Eggs.—Four; delicate white, sometimes flushed with a very faint pink glow; profusely marked, principally towards the larger end, with reddish-brown spots; rarely pure white; sometimes speckled with a few spots or blotches, or marked with fine hair-like lines. Length, almost 1 in., breadth almost ¾ in.

Nest.—In following description by Potts.

Habits.—The finest description of the bird and its habits are, again, by that excellent follower of Gilbert White,—Potts (PO, p. 113 *et seq.*)

"........It may be said to sing matins and vespers for the warblers of the woods, as it is at the grey break of dawn, and in the still hour that closes in the day, that its chimes strike clearest on the ear. It is comparatively silent during the noontide heat, unless some few individuals meet on a tree or shrub that offers, it may be, a tempting show of honey-bearing blossoms, a note or two is briefly sounded, the numbers rapidly increase,

nelody

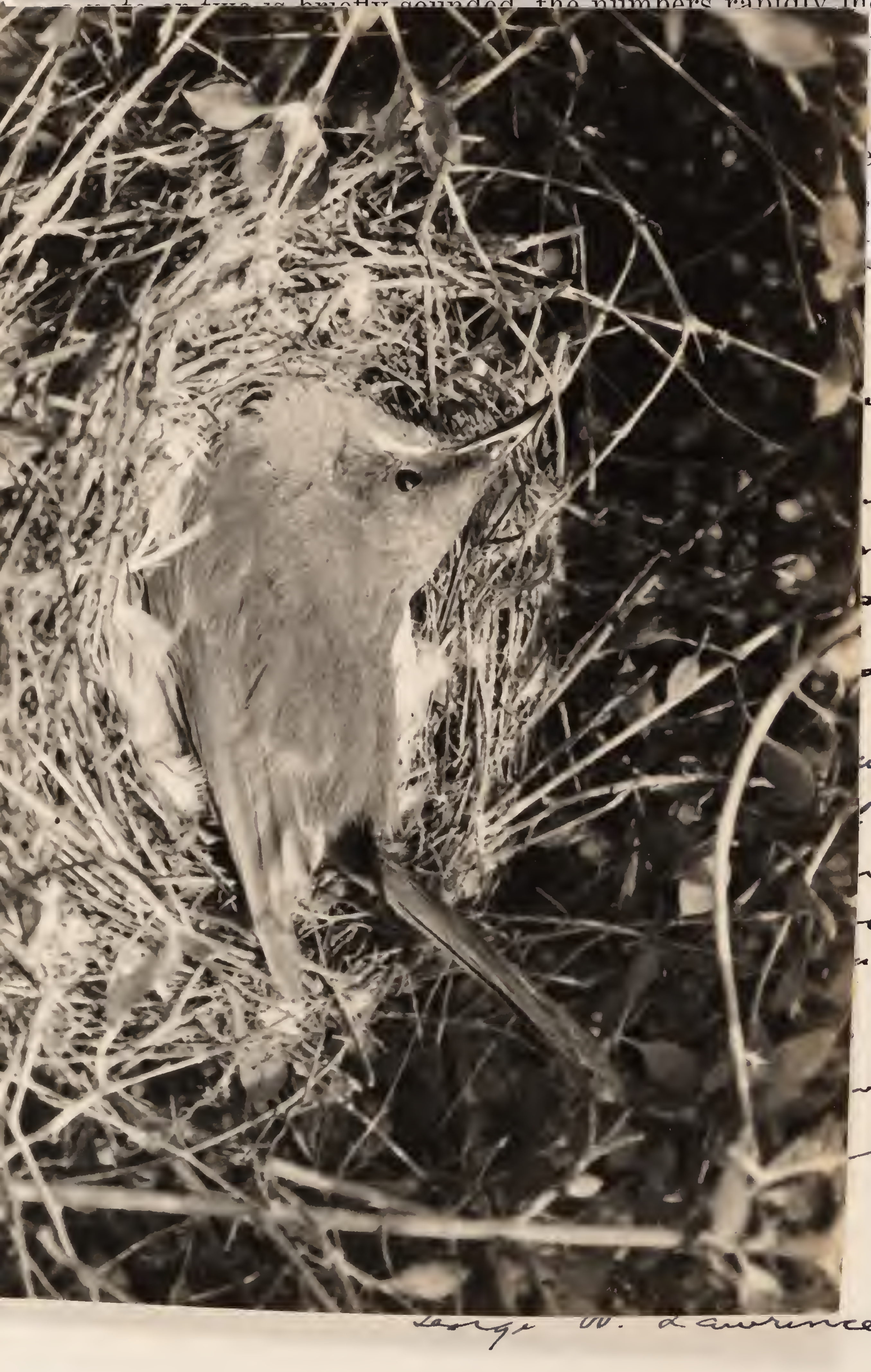
a con-

is the

elodists

which

y com-



respondent

time,

marks have

jot it was

ately 8 a.m.

d-shed where

some Aus-

ird instantly

l-bird would

ne it seemed

led the Maori

this and

would shout

bird bell

. . . . . .

George W. Lawrence.

to save th
by a colle
of white-h
dations on
to write:
will soon d
domestic w
states that
of the bird

Of the s
most comn
Reischek a

The tuf
after his s
connection

The bell
with steel-
red. Fema
brown; a w
The female
leaden grey
3½ in.

Eggs.—F
faint pink
larger end,
times speck
fine hair-lik

Nest.—In

Habits.—
again, by that excellent follower of Gilbert White,—Potts (PO, p. 113 *et seq.*)

"........It may be said to sing matins and vespers for the warblers of the woods, as it is at the grey break of dawn, and in the still hour that closes in the day, that its chimes strike clearest on the ear. It is comparatively silent during the noontide heat, unless some few individuals meet on a tree or shrub that offers, it may be, a tempting show of honey-bearing blossoms, a note or two is briefly sounded, the numbers rapidly increase, after much noisy fluttering of wings a gush of clanging melody bursts forth from a score of quivering throats, forming a concert of inharmonious, yet most pleasing sounds. Nor is the ear alone gratified, for the actions and postures of the melodists are extremely quaint and droll during this performance, which seems to be only undertaken by cock birds; it is usually com-

p. 143

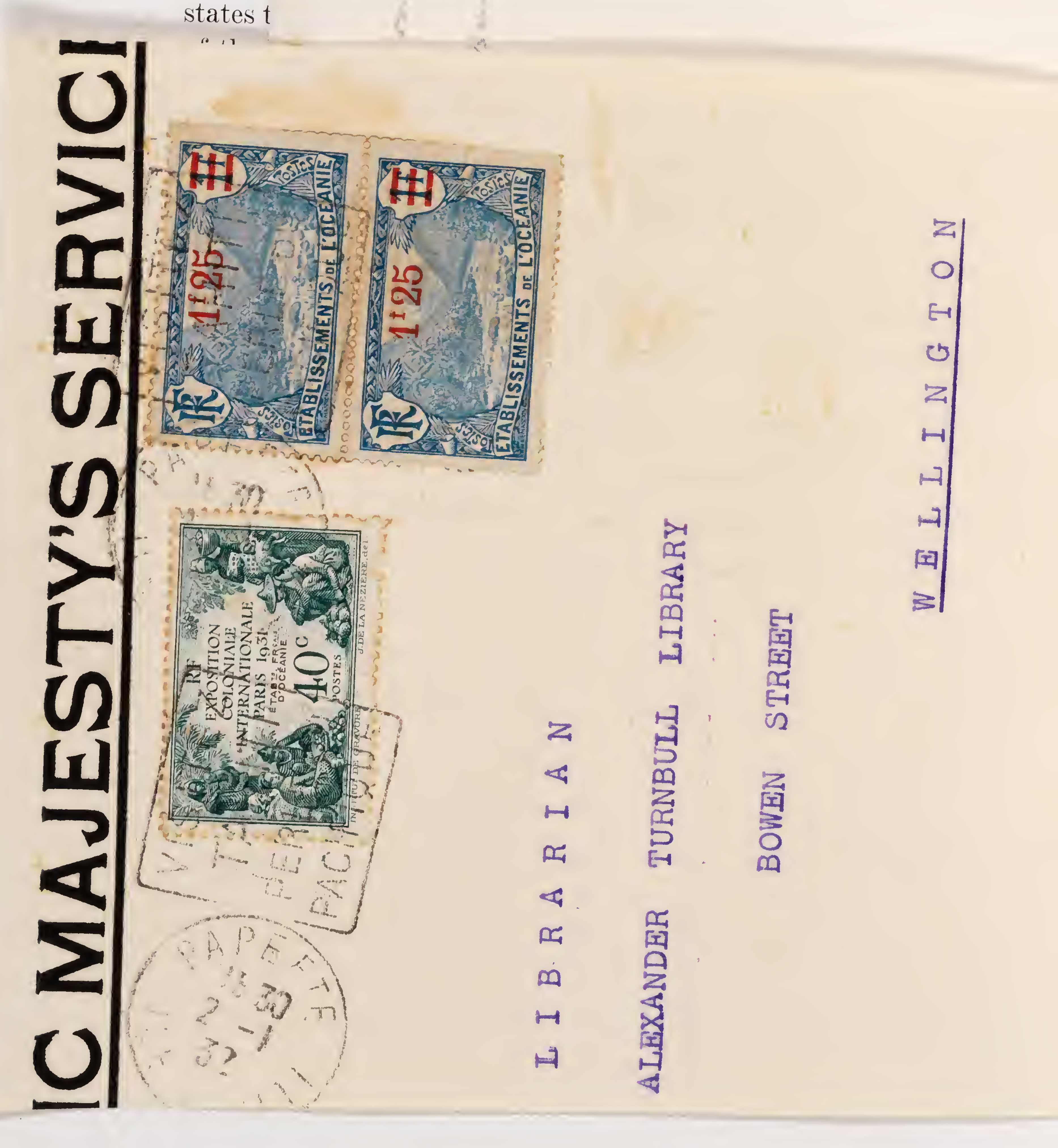
After one of my bird-talks a correspondent wrote from Hihitahi, Main Trunk Line, 26 Apl. 1940: "... Some of your remarks have reminded me of a Maori boy whose job it was to cut firewood daily at approximately 8 a.m.

"Immediately behind the wood-shed where the wood-chopping was done were some Australian wattle-trees (acacia) and instantly the boy started chopping, a bell-bird would settle on one of the trees, and to me it seemed that the bird distinctly whistled the Maori words "Tatakihia he wahie."

"I drew the boy's attention to this, and every morning afterwards he would shout to me, "George! You hear my bird tell me, 'Chop some firewood" '? ......

George W. Lawrence.

to save
by a co
of whit
dations
to writ
will so
domest
states t



LIBRARIAN

ALEXANDER TURNBULL LIBRARY

BOWEN STREET

WELLINGTON

heat, unless some few individuals meet on a tree or shrub that offers, it may be, a tempting show of honey-bearing blossoms, a note or two is briefly sounded, the numbers rapidly increase, after much noisy fluttering of wings a gush of clanging melody bursts forth from a score of quivering throats, forming a concert of inharmonious, yet most pleasing sounds. Nor is the ear alone gratified, for the actions and postures of the melodists are extremely quaint and droll during this performance, which seems to be only undertaken by cock birds; it is usually commenced by two of them that perch opposite to each other, now with swelling throat and puffed out feathers they deliver note for note with curious precision of time and swaying action........

''This cheerful bird does not confine itself to forests and their deep and gloomy shades, it rather affects shrubby gullies, and is a constant and well loved inmate of our gardens and plantations, and vastly doth it delight in ransacking the sweets yielded by the blossoms of the acacia, fuchsia, tritoma [red-hot poker], etc. The berries of the konini, of various species of coprosma, ripening early, furnish some part of its food supply, later on in the year the bead-like seeds of the ti palm are laid under contribution........ It is very partial to the soft berries of a species of mistletoe (*Loranthus micranthus*) and by cleansing its beak from the viscid pulp on some friendly perch it probably is the cause of that fragrant parasite growing on such a variety of supports; here, where the charming songster is yet plentiful, this species of *Loranthus* may be seen on the laburnum, peach, hawthorn, pear, plum, etc.

''We believe the bell-bird can be successfully cultivated, and induced to become a resident; at any rate a place can be pointed out which it now daily frequents, where formerly a specimen was rarely if ever seen, this change has been effected by means of planting a variety of species of acacia, coprosma, etc., and a number of sweet blooming and drupe bearing shrubs.

''Placed amongst the meliphagidae or honey-eaters by ornithologists, it nevertheless shows an accommodating appetite for many kinds of food, we have already pointed to some of the numerous kinds of drupes and berries on which it luxuriates; yet as an insect eater it is not without its value to the culturalist; in twisting and turning amongst leaves, as spray by spray it searches........it exhibits habits and ways that may be likened to those of a true creeper. In dull foggy weather we well remember to have seen numbers of this bird twirling and climbing about the rampant intertwined cords of the muehlenbeckia that hung almost from the very top of a lofty tree, here the bell-birds were most busy in their insect-search, fluttering with half spread wings and swaying on the slender llians that hung pendant from the outspread branches. After moths and large insects on the wing we have often seen it fluttering heavily, noisily it may be said, yet wheeling with sufficient speed to ensure frequent captures. When on the ground, and it is not a bird that either travels afoot far or often, it progresses by a succession of hops, partially opening the wings the while, with jerky restless movements.

"In the beech forests of the Malvern district the korimako may be observed ascending the bole of some black-stemmed tree, to sip the viscid honey-drop that like a dew-sparkle hangs from the stiff waxlike thread thrust forth by the fleshy grub that lies hidden in the bark; it may be noticed that its mode of climbing differs from that of the kaka, kakariki, or tui, its progress upwards is accompanied by a slight flutter of the wings. In winter, the brief season of bird tameness, when some of the smaller of the feathered tribes have developed wholesome appetites, no longer cloyed or pampered with the rich pulp of well ripened berries, we have observed the bell-bird descend to the verandah, and scatter the hungry flock of blight birds or white-eyes, that have been eagerly picking any fatty shreds or particles that may have been swept out from the precincts of the kitchen.

"To return for a moment to its position among the honey-eaters, when the phormium [flax] in the months of early spring sends up its lofty flower stems ranged around with tiers of orange-tinted blossoms, then the bell-bird and the tui indulge in ample honey feasts. It must have been in the spring of the year that ornithologists discovered the bell-bird with the reddish-brown head (*Anthornis ruficeps*), and in this way it doubtless happened; the viscidity of the flax-honey causing it to adhere to the head feathers of the bird, fixed thereon an ample supply of the pollen of the flower as the korimako fluttered from plant to plant gathering its luscious meal. Thus New Zealand possessed during some of the spring and summer months, a red fronted bell-bird, which shortly after vanished only to reappear in the following spring; we have often seen the tui thus temporarily decked out with painted plumage. So in like manner we have noticed early in the month of August, korimakos with the head feathers coloured with bright lavender-blue, and have traced this gay marking as due to the numerous visits paid to the freshly opened blossoms of the native fuchsia (*Fuchsia excorticata*).

"To the practised ear and eye the sexes are readily distinguishable, the female is less than the male, duller in colour, with a thin whitish streak slightly curving downwards from the angle of the gape. The note or brief song of the hen is altogether different from that of the cock bird. Both sexes are vigilant, and when disturbed or scared give an alarm call which quickly gathers together many of their fellows, who one and all repeat the chattering cry of warning, and often thus point out the whereabouts of a lurking cat on predatory raid intent; their discovery of the presence of an owl or some strange bird is also thus made known. The bell-bird is usually found not far from water, that may be from the finest kononi trees [fuchsia] that yield a favourite food, often occupying the lower part of a ravine, nearest the edges of creeks.

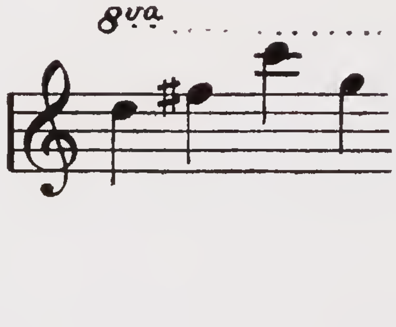
"In the busy breeding season both sexes work at nest building; placed at no great elevation from the ground, the structure may be found in a variety of positions, but we have noticed it very frequently beneath a sheltering canopy of bush lawyer (*Rubus*), near the top of some moderate sized shrub or bush; very often under a thatch of the persistent leaves of the ti palm that hung adown the tall stem. It is rather flat, loosely yet strongly built of sprays, grass, moss, etc., well lined with feathers; on examining the foundation of a nest, we have several times found green sprays of manuka amongst the interlaced materials, a fact which disclosed a pretty good proof of the power of the bill in breaking off twigs from so tough a plant. From wall to wall across the top the nest measures about five inches, diameter of cavity, two inches nine lines; depth inside, about two inches. We fancy that the lining feathers are often selected in such a manner as to afford some evidence in their disposal and arrangement of the bird's love of harmony and colour; as, for instance, we have noted specimens with the inner lining red, as the feathers used have been those of the kaka, another has been ornamented with the bright green plumes of the parroquet; near our farm, where many kinds of poultry were kept, we have seen instances where the lining has been of black, white, speckled, or buff feathers, such materials being furnished respectively by the black Norfolk turkey, the goose, the pintado, and the Cochin-China fowl............ The breeding season extends through spring and summer, the young are fed till long after they are well fledged, they keep together after leaving the nest, we have noticed four roosting on a bough as close as it was possible for them to get together. The young cocks look very droll when they first attempt to sing, and reproduce some strange, low sounding, yet harsh squeaks. It should be mentioned that the bell-bird builds its nest often in much frequented places, we have seen it near the side of a public road, certainly within reach of a horseman; against a ti palm stem, at a gateway where there was a steady daily traffic, yet the young were safely reared. Certain markings on the eggs seem to be characteristic of certain families, as in one gully and its neighbourhood, those which have fine hairlike markings are met with, this is an indication that the korimako is local in its habits.

"We do not think that in this locality [Governor's Bay, head of Lyttelton Harbour] there is much diminution in their numbers either in the gullies that have been preserved, or in the gardens; we must have seen more than a score of nests this season within the area of our small bay. In the North Island one may travel day after day without seeing a single specimen, yet there are localities where the bell-bird is still abundant, to disclose these places would be more beneficial to the skin dealers and exchangers than for our feathered friends. Confident, utterly devoid of any shy cunning, the bell-bird might be readily cleared off from any favoured resort by a merciless collector.''

Referring in another place to the beautiful, sweet-scented mistletoe, *Loranthus micranthus,* Potts writes (PO, p. 135), ''........It blossoms early in the spring, and however insignificant the flowers may appear to a casual observer, the plant is very attractive at all times of the year; the foliage is of a rich dark green, so closely arranged as to form a dense bush, that is after it has attained some years of age; at the season of flowering the passer-by cannot fail to notice the fragrant perfume that is given off by the flowers, this is more especially noticeable in a close warm state of the atmosphere, when the air for a considerable distance in the vicinity of the shrub seems fairly laden with its powerful odour. As the berries ripen they become whitish or faintly roseate, till they assume a rich golden yellow, but in this state they remain but a short space of time, for the berry-eating birds are too fond of this fruit, to allow this dainty food to remain untouched, the berries are greedily picked off as they ripen; we have seen a dense mass of this parasite crowded, or it may be said, astir with bell-birds, when for the nonce, it has become as it were, a concert hall of nature, whence issued forth gushes of sweet sound, a flood of most delightful harmony.'' Here he removes the charge of inharmony of the bell-bird's music, made earlier in the quotation.

It is in writing of the Loranthines, too, that Potts gives one of his beautiful descriptions of part of New Zealand, that delightful haunt of melodious birds and beautiful things. He writes (PO, p. 137): ''For any desirous of seeing how goodly a display can be exhibited by some of the loranthine tribe, more especially for those to whom the grandeur and magnificence of the more remote recesses of the Alpine districts are as yet unknown, we would urge a ramble into the back country if wearied for a while with the monotony of the plains; if after inhaling through months and years it may be the heavy atmosphere that rests on ground just above sea level, let any such try the inspiriting influence of the crisp mountain air. If any excuse is needed for refreshing the lungs and laying in as it were a fresh stock of health and cheerfulness, let such excuse be found, if need be, in an enthusiastic desire to see one of our most attractive native plants [*L. tetrapetalus*] in the freshness of its beauty, amid the natural surroundings which lend their aid to enchant the beholder. Now with this object in view, sometime in the month of December, explore up stream the course of one of the large rivers sweeping so swiftly eastwards to the sea, penetrate the huge barriers of the Southern Alps, trace the wanderings of your limpid guide, till you reach some deep bosomed vale closely hemmed in by snow-capped mountains, that shoulder to shoulder tower aloft 'in most admired confusion.' Stimulated by the pure air, the freshness of the scenery, you may almost imagine the age of miracles has returned, that old father Time has lifted some of his daily increasing burden from your shoulders,—can you dare the chill of the morning and watch the rising sun flush with rosy hues the snow peaks of the western range, that but now stood out cold and impassive against the star-lit sky? Novelty attends you at every forward step, only look upward, there is novelty once more, the cloud landscapes of the Alps, every varying, will shew you 'effects' to which your eyes have been unaccustomed. Trace the outline of the ridges of the mountain and as you gaze upward note how their brown and purplish-tinted sides slope steeply down, ruffled here and there with overhanging crags and rocky pinnacles, about whose jagged ledges dark foaming cascades, leaping down with hurried bounds to the frigid snow-fed stream, that with noise and ceaseless din, courses along the smooth worn shingle. Look around, let your eyes take their full stint of the sublime scenery that cannot be described; in this grand solitude where nature is unmolested, in negligence unstudied, with all her grand and simple forms of beauty undisturbed; perchance from far aloft, soaring on swift wings, the kea harshly screams, or from the rock-bound torrent comes up the wail of the blue whio; not a human sound strikes on the ear. Above the tawny herbage of a narrow flat, dotted with waving tussocks, beyond the green *Veronica,* the ruddy-leaved *Dracophyllum,* the spear-armed *Aciphylla,* that with varying foliage garnish the bosky terrace; dark as a brooding thunder cloud lies in a sombre mass, the dusky foliage of a black-stemmed beech forest, that stretching upwards from the river side, spreads its dark mantle across the steep-flanked mountain spur. On the facings of the gloomy wood, like rifts in threatening clouds, you may see from afar the scarlet hangings of our mistletoe; by its adherent shrub each sustaining tree is decked in gala bravery, some of them carry the glowing decoration high aloft, others of the outermost ranks have the loranth's brilliant hues on the low branches that almost sweep the ground. Now on the enchanting scene the sun pours forth its golden flood, and steeps each forest glade with the wild witching of dancing lights and shadows, favoured by the breeze, trembling in the golden haze, the scarlet blooms seem near aflame as they play against the dark green framing of the dusky beech trees."

The bell-bird shares with the tui the position of first place among the song-birds of New Zealand. Opinions as to its merits differ; and some surprise is felt on reading that "The bird which has raised the reputation of the New Zealand birds as singers far above their merits is a honey-sucker. It is the kokoromaka of the natives, and the bell-bird of the settlers ....and although it has only four notes, these create the strangest melody when repeated independently by hundreds of throats." (TS, Vol. 1, p. 24). The four notes referred to are possibly the same as the ones given by Dr. Shortland,—



"No one who has not actually listened to the melody can form any idea of the effect produced by these high notes coming from a hundred throats independently, and blending together in the richest harmony of song." The notes were recorded by Shortland near Waikouaiti, in Otago, on the 1st or 2nd of November, 1843. "In the morning," he writes (SS, p. 121) "I woke early; and, as the dawn first peeped forth, was deafened by the sound of the bell-birds. The woods which were close by seemed to be thronged with them. Never before had I heard so loud a chorus. I called to mind Captain Cook's description of the impression made on him by the singing of these birds, when at anchor near the shore in Queen Charlotte Sound. He is wrong, however, in saying that they sing at night, like the nightingale. They commence at dawn of day their chime of four notes which, repeated independently by a thousand throats, create the strangest melody. But they cease, as by one consent, the moment the sun's first rays are visible; and there is a general silence. Again, at even, they commence, just as the sun's last ray fades, and sing on till dark."

Further details of the chorus-song are given by Reischek (Tr., Vol. 19, p. 187): "I had a concert near my nikau whare, from ten to twenty birds of both sexes sitting on the trees and singing in chorus together. The morning and evening song differs from that during the day, the morning and evening notes consisting of three distinct sounds resembling the chimes of bells, from which I suppose the bird derived its name. The song during the day is more of a warbling sound. One gives the signal to begin, with a snap of the bill, and all the birds join in the chime, keeping perfect time together until the leader, with another snap, gives the signal for a rest. After a few minutes rest, the chiming song is repeated."

Again, "In the early dawn," writes Taylor (TI, p. 402), "when the vocal songsters of the grove assemble by mutual consent on some tree, to sing their morning hymn, the note of the korimako is heard above all the rest, and gives the greatest harmony to the whole; indeed, nothing can exceed the sweetness of this concert, which is only heard for a short time, and then ceases for the rest of the day, until the birds begin to koro, or intimate the day has closed, and then in some parts of the south they again assemble to sing their evening hymn; but this is not generally done, the favourite time is the morning.........''

The bird was known to Wohlers (WM, p. 117) as koparapara, his residence being at Ruapuke, near Stewart Island. He writes, ''........when they have satisfied their thirst for honey, they sometimes all sit in one tree and sing a merry song, as if they wished to express their gratitude in this way. They keep such good time that a musician can write their notes down. The sound is loud and metallic, like the clear sound of a

Taylor, 1850, Nov. 7 – Koriniti

"I arose this morning by candle-light. The singing of the birds at early dawn was very beautiful. I could scarcely make up my mind to get up, it was so delightful to lay and listen to their early song. First a few commenced, then they seemed to awaken up others and at last a full chorus of the feathered songsters of the grove burst out in a long strain of delightful harmony until some parrots harsh note broke in and then gradually the number of songsters decreased until with the perfect light all ceased."

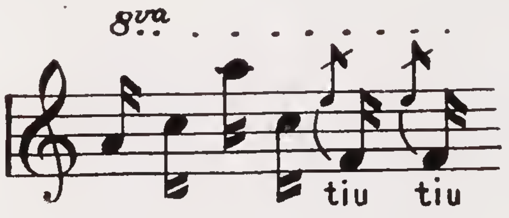
bafflingly fast, the interval eluding definition; at times the interval may be clearly perceived and noted. It appears to be

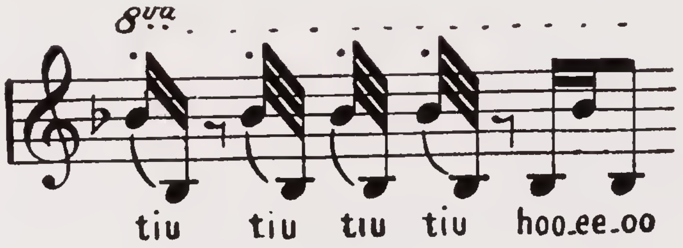
"No one who has not actually listened to the melody can form any idea of the effect produced by these high notes coming from a hundred throats independently, and blending together in the richest harmony of song." The notes were recorded by Shortland near Waikouaiti, in Otago, on the 1st or 2nd of November, 1843. "In the morning," he writes (SS, p. 121) "I woke early; and, as the dawn first peeped forth, was deafened by the sound of the bell-birds. The woods which were close by seemed to be thronged with them. Never before had I heard so loud a chorus. I called to mind Captain Cook's description of the impression made on him by the singing of these birds, when at anchor near the shore in Queen Charlotte Sound

harmony to the whole; indeed, nothing can exceed the sweetness of this concert, which is only heard for a short time, and then ceases for the rest of the day, until the birds begin to koro, or intimate the day has closed, and then in some parts of the south they again assemble to sing their evening hymn; but this is not generally done, the favourite time is the morning.........''

The bird was known to Wohlers (WM, p. 117) as Koparapara, his residence being at Ruapuke, near Stewart Island. He writes, ''........when they have satisfied their thirst for honey, they sometimes all sit in one tree and sing a merry song, as if they wished to express their gratitude in this way. They keep such good time that a musician can write their notes down. The sound is loud and metallic, like the clear sound of a bell.........'' I was pleased when I came on this note.

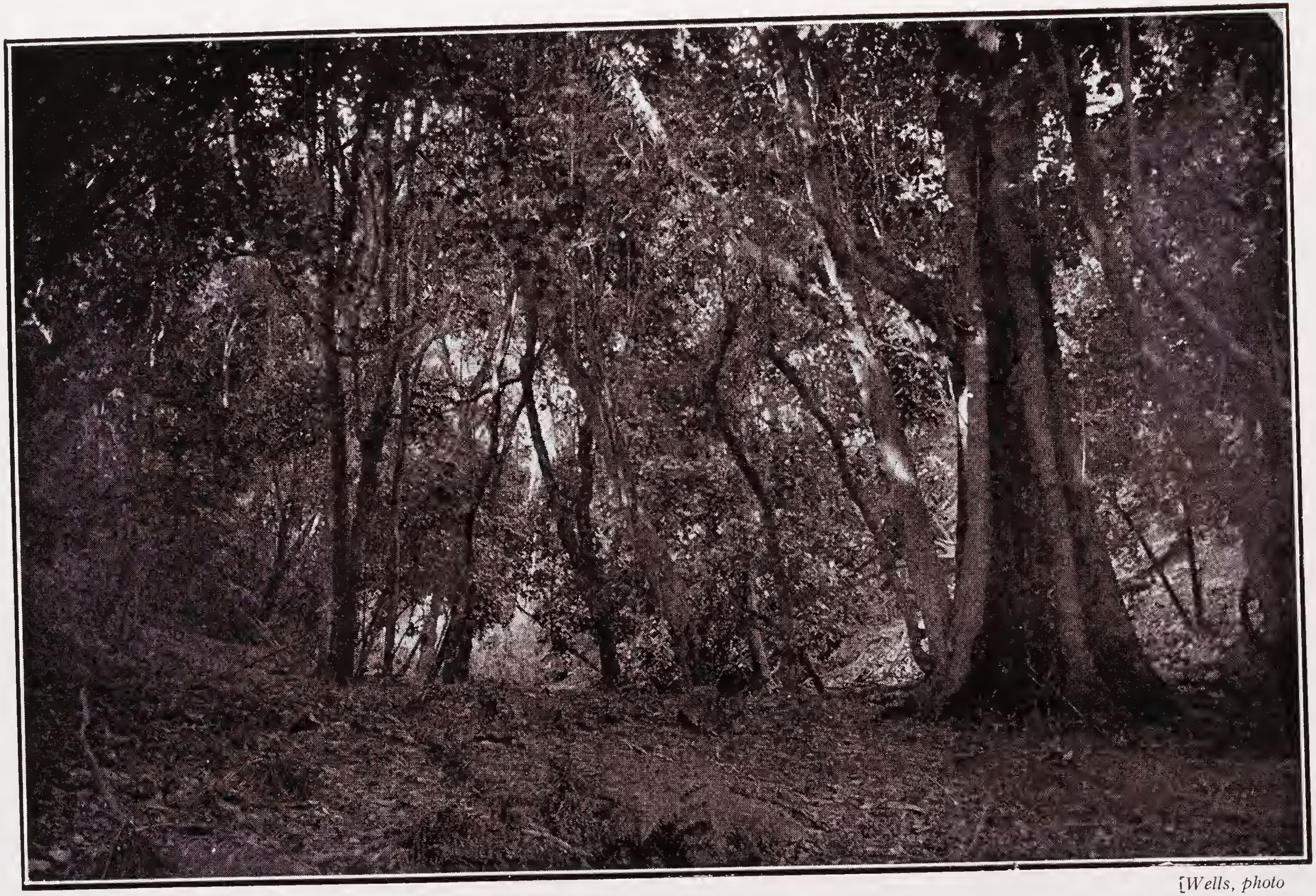
During the many years that I have been recording the songs of our birds, I had only twice seen a male bell-bird,—on two consecutive days,—until the year 1924, on Kapiti, when most that I saw were males. Almost all the songs recorded are songs of females.

1


2


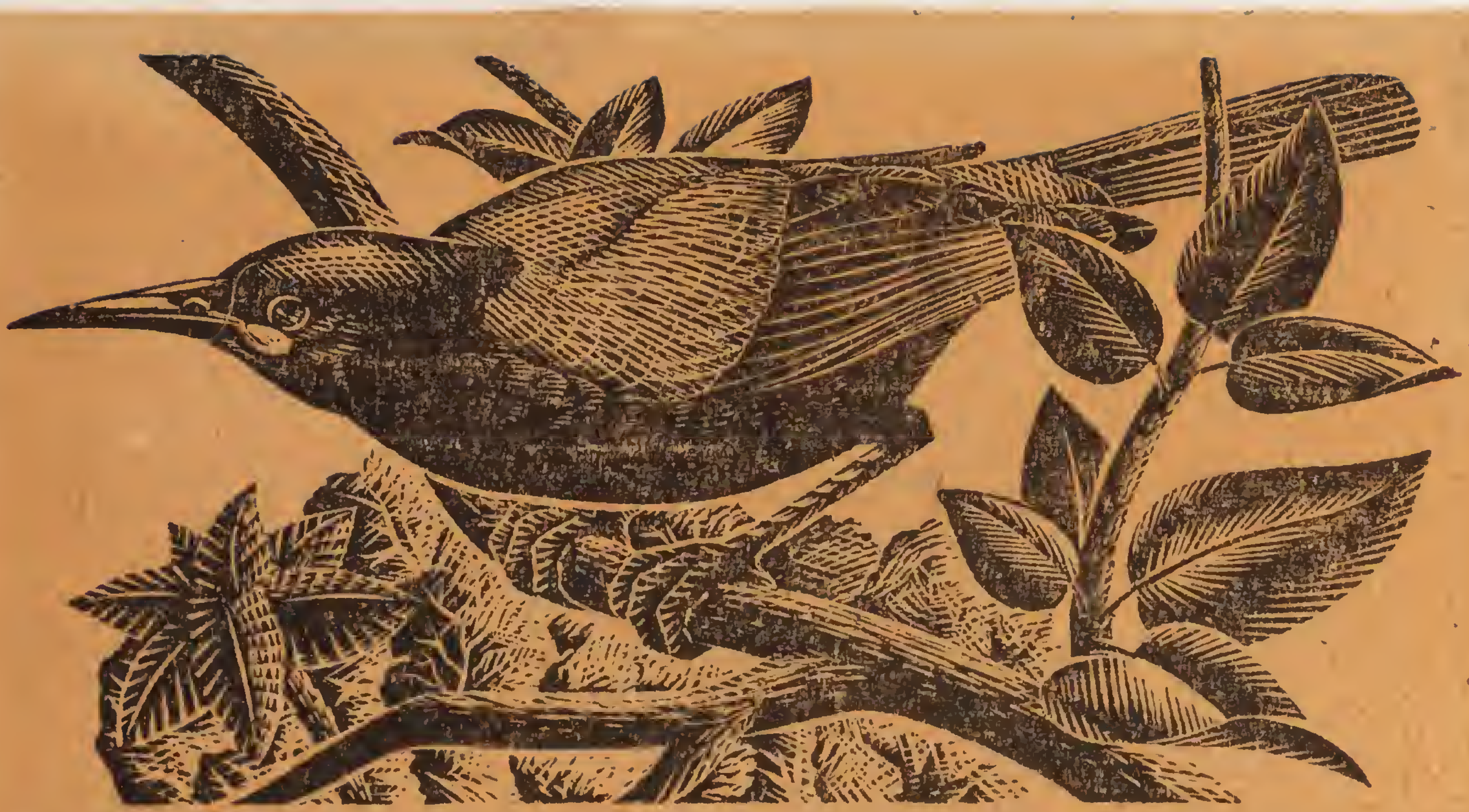
The common call is a quick, bright, loudly-uttered phrase, as in (1). In sound the notes are mellow whistles, usually without trace of vocalization except in the last two, which take the sound of *tiu tiu*. They formed the characteristic conclusion to the bell-bird call at Stony Bay, on Banks Peninsula, the phrase (2) taking less than a second in utterance. The pitch of the opening note, and consequently of the whole phrase, varied constantly, as much as five tones, even during the same day and the same hour. The *tiu tiu* was very sharply uttered; and it may be observed that this vocalization, *tiu,* enters into the notes of several birds. At times the slur implied is bafflingly fast, the interval eluding definition; at times the interval may be clearly perceived and noted. It appears to be caused by the change of shape in the singing aperture, from that required for the *i* (*ee*) to that required for the *oo*, so that the interval of the slur will under ordinary circumstances, depend upon the vocalization, the purer the *ee* and *oo* sound of the *tiu* (*tee-oo*) being, the wider the interval, till the full difference of natural vowel-pitch is made; as the alteration in the shape of the aperture brings the *ee* sound nearer *oo*, the interval becomes less. At Kapiti phrases were noted in January, 1917, consisting almost altogether of this vocalization, as in (2). The phrase was varied by the central very staccato *tiu* being repeated a varying number of times, two, three, or more. Every phrase would be repeated twice or more, the three concluding notes being of a strange, mellow, bell-like quality, vocalized *hoo-ee-oo,* or *huiu,* like the call of the huia. Variations in the interval of the slurred *tiu* have been noted as small as a semitone, and as much as an octave: at times no interval can be detected, as if the vocalization were simply *tchoo.*

In the common phrase (1) the *tiu tiu* may be dropped, and a continuation added as in (3), where a whistling opening is concluded with two deliberate bell-like notes. The whole was uttered in a second and a half, perhaps less. It must again be stated that all variants noted were heard more than once; in many cases they were heard scores of times before being finally recorded. The notes often vary in force, as shown in (4), where the pitch of the softly uttered *e* was very baffling. The phrase was sung by a bird that came flying with the call *tiu tiu tiu,* and settled in a tree close by, beginning at once to search for insect prey. The song, taking a little over a second, was clear and bright, and as usual constantly varied in pitch. In the year this was taken, 1912, it was noticeable that at times the call was preceded by two very light notes, these taking the place of the opening *tiu tiu.* In (5) an extraordinary high note was introduced, it being dropped an octave at the close. In (6) the accent was on the first note, and on the following odd notes right through. This was the common call on Kapiti in 1917, the notes being clear whistles, eight or ten to the second, the longer concluding notes being clear, open, and full, sometimes flute-like.



[Wells, photo

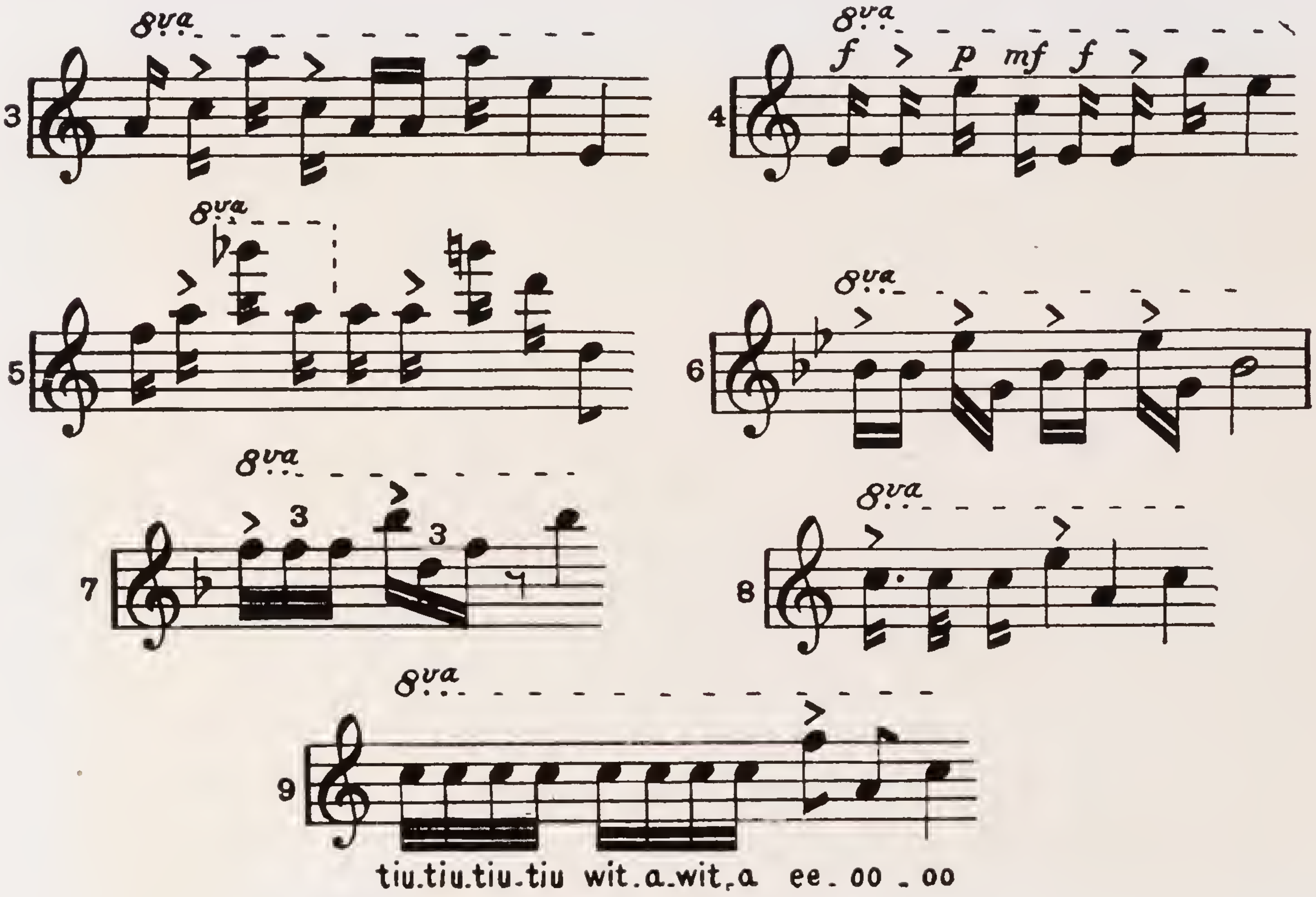
Grove at kohekohe at Waterfall, Kapiti.



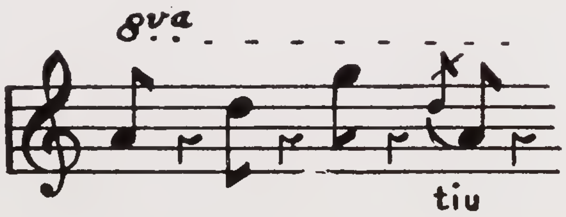
"BELLBIRD," By E. Mervyn Taylor. This wood engraving is reproduced in "Year Book of The Arts in New Zealand" (H. H. Tombs, Wellington).

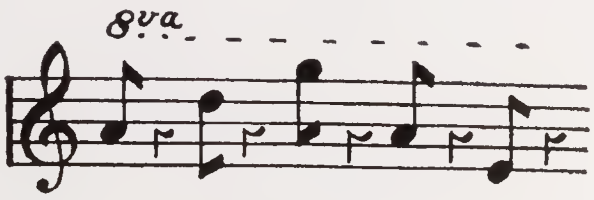
korimako

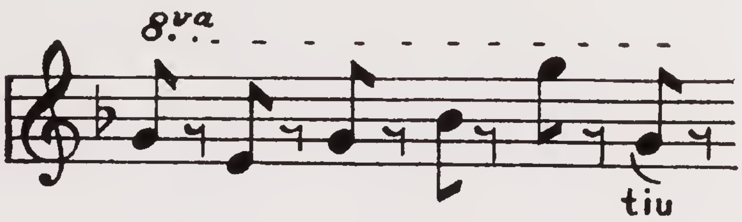
In (7) the usual pairs were triplets. Further variations of the call are shewn in 8 and 9. Here the closing notes are prolonged, and where they are so prolonged their quality usually changes from the whistle of the opening to clear mellow bell or flute-notes. In (8) the whole was more flute-like than the ordinary call: the phrase occupied something over a second. In (9), whilst the vocalization of the opening notes was *tiu tiu,* there was no slur, the intermediary *ee* between the *t* and the vowel sound being minimised, as though the sound were *tyou* rather than *tee-oo,* as in the sharp pronunciation of "Here's *t' you.*" The phrase occupied about a second and a half.

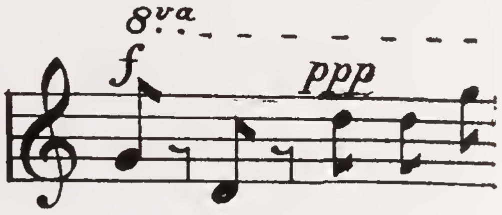


Like the tui, the bell-bird has an evening-chime. In it the call-notes are used, but are used much more deliberately. The bird that sang the notes of (10) and (11) sat on the top of a dead tree at the edge of the bush in the evening, repeating one or other of the phrases at intervals. The tempo was about five quavers to a second. The characteristic *tiu* which was heard in (10) was discarded in (11). These were noted in 1907, at Stony Bay, and five years later a similar theme (12) was noted as sung during the day. It was not always sung in full:—often the first two notes only; or the first five; if only the first two, the second was lengthened to a crotchet. On one occasion, being immediately below the bird when the two notes were sung, I repeatedly heard the light notes of (13) following the others,

10


11


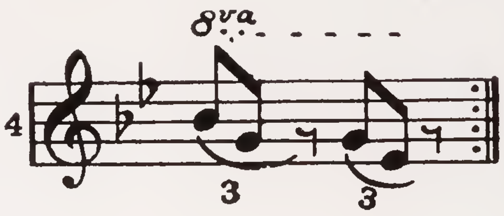
12


13


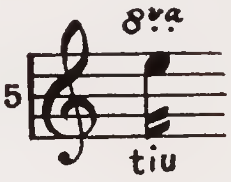
which were bell-tones. Somewhat similar in character was the swinging theme of (14), heard on Kapiti in 1917. The first two notes were clearer in sound than the two following, and the theme, occupying two seconds, was repeated over and over. The notes were sung in an obscure deathly vale, whose entrance, an apparently dry water-course, was piled with angular rocks and fallen dead trees, amongst nettles, struggling ferns, bracken, and a few clumps of graceful-plumed toetoe. The water-course, overshadowed with karaka, kohekohe, and daisy-tree, was steep and tortuous, and at its first bend stood a clump of ponga, the beautiful silver tree-fern. Once the gorge-like vale was entered, it opened out. Its bed was cumbered with great confused masses of savage rock, angular, unmossed, and unlichened, strewn with dead trees in all stages of decay, fallen, grappling with the rock, from the steep sides, which were gashed and scored with treacherous rock-slides coming from raggedly-cusped guts above. Trees, some of huge size, still clung to the steep slopes, their roots twisting and intertwining, sometimes in the air vainly, sometimes hardily in rock crevices; many leaned ominously; many were already partly wrenched from their precarious hold. It seemed the forbidden entrance to a forbidden land; a Dantesque region; and the way was barred by a sheer rocky bluff that rose across the gorge. Down this rock trickled thin streams of water over the black gleaming surface, into a shallow pool at the foot, half filled with a pash of dead and decaying leaves. But the forbidden land gave promise to be one of beauty; for above the cliff hung clustered green ferns, the tree-foliage was dense and varied, all looking fresh and inviting. Occasional butterflies settled on the nettles at the entrance; thousands of plumed grassheads, and silver toetoe waved on the sunny flat between the entrance and the sea, whose rumbling on the stone-strewn shore sounded, in the vale, like the moaning of Coccytus. The land above *was* one of beauty: I entered it some days later by a circuitous route over the higher ridges.

It may be that to the various songs and notes heard is imparted to the hearer some of the characteristics of the surroundings where they are heard, whence the strangeness with which the regular beating, the unusual tempo, the peculiar sound, of the notes in (14) affected me. On the other hand, it may be that the surroundings affect the character of the song. This is possibly imputing to the bird an aesthetic sense of a similar nature to the one experienced by man himself: nor does there seem to be much unnaturalness in such an imputation. The bower-building bird of Australia, the dancing birds of La Plata, display a human love of decoration and rhythmical motion. The bird of paradise, the Argus pheasant, the peacock, betray as human a love for the beauty and disposition of colour. The aesthetic sense, indeed, appears to be wider in range than is usually allowed; it is natural, and its end in birds and men, be it for use or gratification, is largely the same.

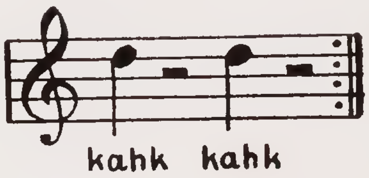
14



15



16



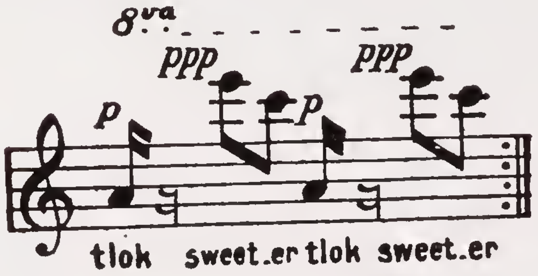
There are single notes uttered by the bell-bird that are remarkable in quality; notes making a much deeper appeal than the varied combinations of the ordinary call. Such a single note was (15), heard in 1912 at Stony Bay. It was one of the *tiu* vocalizations, and a bird would often sit in a tree repeating the single notes at intervals of about three seconds. It was a short, sharp, clear note,—a hiccuped drop of song that one could imagine as falling from the honey-loving bird with a bell-like pat into some resonant receptacle;—to be hoarded, one of many glittering gems of song, against some period of songless penury. The bird ejected the note almost as one would spit a hair from the lips. I saw one bird in a shrubby ivy-tree (*Nothopanax arboreum*), fifteen feet distant, uttering the note. The bill was opened fairly wide, the throat swelled quickly and contracted with each note: a variant of the phrase (3) sometimes followed. In the shrub there seemed to be an answer to the *tiu*—a plaintive slurred note; only one bird was seen, however. Quite different in quality, though similar in producing a deep effect, was the note of 16, heard on Kapiti at the end of 1916. It was almost vocalized *kahk*, and sounded like a far distant bell. It was heard on a day when a strong south-east wind was blowing, and it sounded like the beat of a bell blown from the distant mainland. The bird was searching for insects in a ngaio, blown and tossed by the wind, and it uttered these notes, at intervals of two or three seconds, as it moved about busily among the agitated foliage. The penetrating nature of a single rich note is evident in the wide appeal of a mellow bell.

The cry of the young bird is on a single note; but the appeal in that is chiefly to the parent bird. A young bird uttering a high staccato *a* was searching first in a manuka (*Leptospermum*) then in an *Olearia forsteri,* constantly uttering this highly-pitched note. Later on the note was *f* instead of *a,* and this young bird sat in the top branches of a manuka repeating it incessantly twice a second for minutes without pause. The old bird came at intervals to feed it. The cry would cease for a couple of seconds whilst the food was being given, and then begin again. Birds are apparently able to sing as well with their mouths full of food as empty: I have seen this in more than one New Zealand bird, and also in the British blackbird.

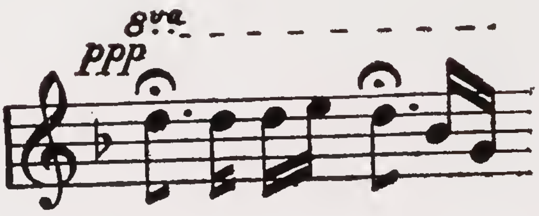
Often the notes of the bell-bird are flute-like or bell-like, and extremely mellifluous in quality, more especially when deliberately sung; but the more common notes, those of the usual call, are rather clear whistles. It is rather from her occasional notes than from her usual ones that the bird's name is derived. Where the notes are whistles, they may be produced on a piccolo, though the shrillness of that instrument is absent in the voice of the bird, and the instrument cannot sound pianissimo. Usually a flute or mellow bell might be employed.

Like the tui, the bell-bird has a series of charming whisper-songs; and here, in definiteness of theme and artistic effect, in the songs I have heard the bell-bird excels the tui. It was on Kapiti, in 1916-17, that I first heard the whisper-song of the bell-bird.

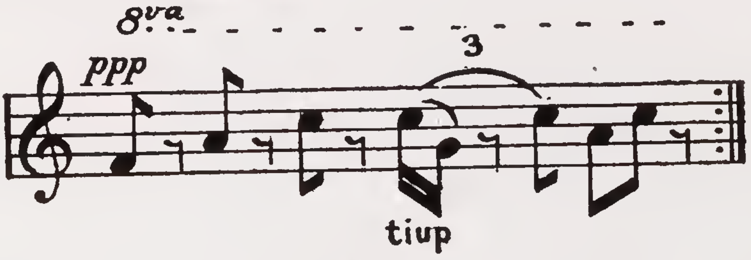
17



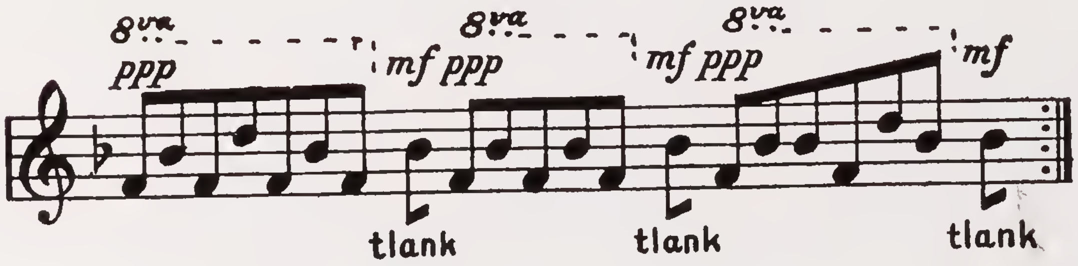
18



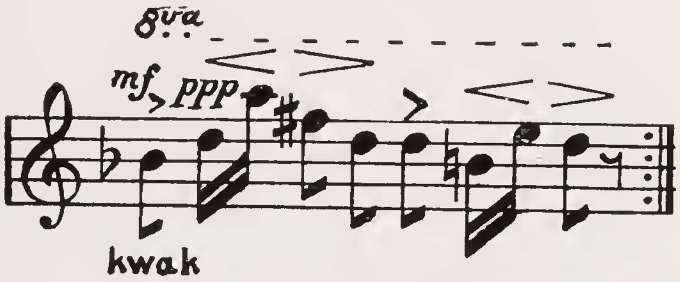
19

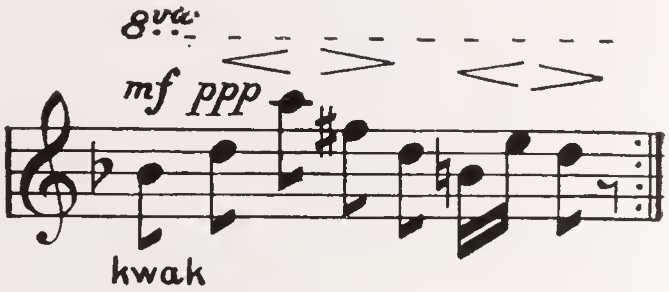


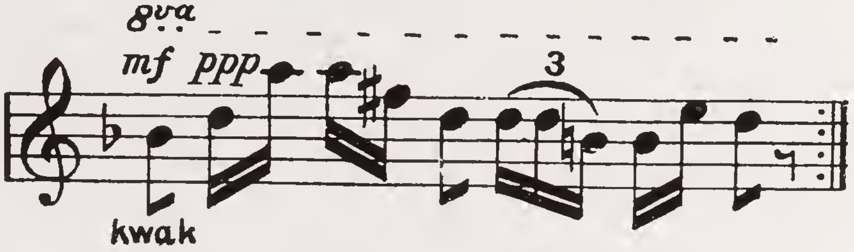
20



The bird singing (17), which is a whisper-song in part, sat in sight close above me. The low note, *tlok,* clear and bell-like, was sung piano; the high notes, double pianissimo were vocalized *sweet-er.* The phrase, repeated several times, was sung about three quavers to a second: it is in perfect time. In perfect time, too, is the phrase (18), sung two days later; and in this there were artistic pauses on both the dotted quavers. The phrase came suddenly from close beside me, and was immediately followed by the common call. The repeated phrase (19) was sung in the evening; it was varied constantly though sung several times as written; and was sung so softly as to be inaudible at times. The theme of (20) was also sung in the evening, and sounded very beautiful. It was sung in a small karaka, twenty feet distant, about five quavers a second. I thought this whisper-song, when I first heard it, was sung by a tui, but I afterwards saw the bell-bird singing the same or a similar song. A curious interjection, vocalized *tlank,* broke the theme into definite phrases, and the whole appeared to be in perfect time. Often the *tlank* only, or other similar interjection, will be heard, with pauses between, when it may be known that a whisper-song is in progress, and snatches may be caught on a nearer approach. This beautiful song was noted on 1st January, 1917; and on the 5th of that month I heard (21), the most perfect of all the whisper-songs I have heard. It was long-continued, in perfect time, and whilst (21) seemed the chief form, it was sung with many simple but beautiful variations such as (22) and (23), and others not noted.

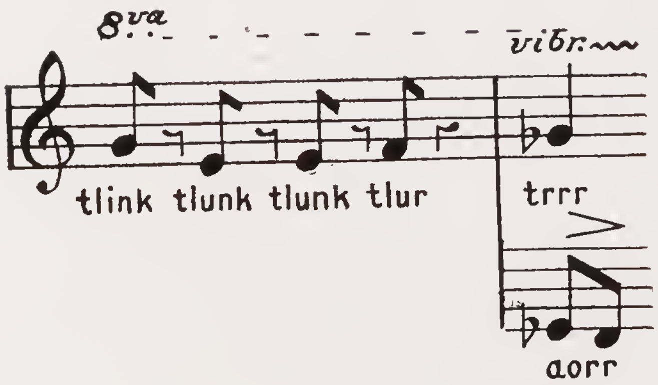

21

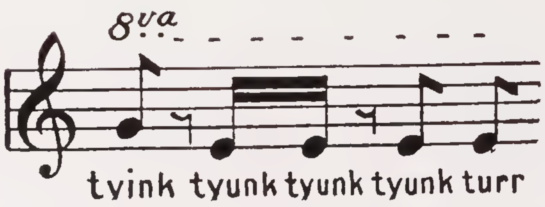

22

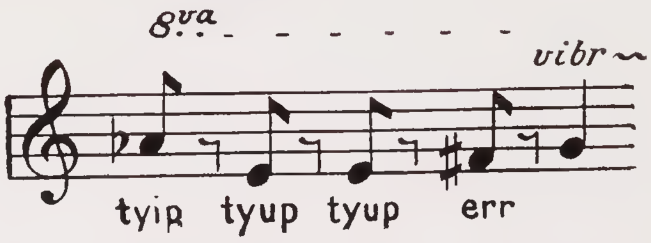

23

Each phrase opened with an expletive, generally vocalized *kwak,* a quaver in duration; once or twice the expletive was *tsrr.* The expletive always took the principal accent, and at a distance of twenty feet nothing but the expletive could be heard, at regular intervals of about two seconds. On approaching the bird, the notes, at a distance of ten feet, were barely audible, and even then at times only; for there was a varied rise and fall in intensity. The bird was in a dense manuka shrub, and the song continued unbrokenly for two or three minutes, when my trying to approach still nearer up a steep slope stopped it altogether. It was heard at dusk, when other songs of a similar nature were also in progress. The phrase (21) was repeated over and over with variations of the nature noted, and there were other phrases as regular in time, and perfect in form, and delightful in melody. The notes were mellow though highly pitched, occasionally broadening to a bell-sound. There appeared to be no listening bird near at hand, and whilst birds have a far keener sense of hearing than human beings, from what I have heard I am convinced that they often sing for their own gratification.

The whole of the foregoing bell-bird notes and songs were sung by female birds. I have heard the male bird sing on two occasions only. On 30th December, 1912, I heard the phrase (24) sung by a male bird. The notes were clearly vocalized

24


25


26


tlink tlunk tlunk tlur, without breathing on the *k*. When the vowel or open part of the note sounded—that is, I take it, when aperture had been formed,—there was a distinct clear bell-note, this note giving the pitch. The consonantal sounds were evidently, so to speak, the gearing up and slackening of the vocal organs for the emission of the bell-note. On most occasions when the bird sang, the first two notes only were sounded; often the first four; and at times the whole phrase, ending with the vibrato *trrr*. This last note was most entrancing in effect; it sounded like a bell struck very rapidly and softly with a muffled hammer, and its quality was extraordinarily sweet and plaintive, the impression being given that the bird, suffering from some human heartache, was on the point of tears. At times the place of this note was taken by a slurred note without bell-sound; a note sounding rather like a sharply unwinding fishing-reel. The bird sat only a few feet above me, singing one or other of the pairs of notes, or the whole phrase, for some considerable time: each pair took about a second. The whole body of the bird appeared to be employed in producing the notes, contracting all along its sides on the emission of each one, the neck being stretched out and the beak slightly open. He turned from side to side, singing one note to the left, one to the front, and one to the right, indiscriminately, turning through a semicircle. He raised his body with each note, as though to eject them with a jerk in the case of the first four, and to *pour* out the sound of the vibrating bell. I saw and heard the bird again on the day following, when the notes and vocalization varied as in (25) and (26). The consonantal sounds were more subdued, and again the *k* and *p* were not breathed. The whole sounded more musical than on the preceding day, and the *turr* was entirely bell-like. So rich and beautiful was their quality, that the singing of these few notes produced a more delightful effect within me than any bird-notes heard before or since. The manner of singing of the male and female bell-birds differs as remarkably as the quality of their song; but the disparity in the number of birds of the two sexes seen and heard is altogether inexplicable. From later observation I conclude that the male and female are apart during part of the year, and that, at times at any rate, the male is shy and silent;—I have rarely known the female to be so.

Of the twenty-six Maori names recorded (WJ, p. 199) the ones most commonly used are makomako and korimako.

The former has been corrupted to mockiemock, or mockie—the name which I was accustomed to hear as a boy, before ever I saw a patch of Maori bush or was acquainted with any Maori bird but the fantail. Those who did not know that the name mockie was a corruption of the Maori, would find support in it to the statement that the bird is a mocker. Evidence is extremely conflicting; I have heard no notes that lead me to suppose that the bell-bird is a mimic, and many well acquainted with the bush and the birds agree with me; yet there are as many who hold the contrary opinion, the first and foremost being Dr. Anderson, surgeon and natural historian of the *Resolution*, on Captain Cook's third voyage. He described the natural history of Queen Charlotte Sound, as they lay there in February, 1777. The bell-bird was apparently plentiful; and he writes of it as "a small greenish bird, which is almost the only musical one here, but is sufficient by itself to fill the woods with a melody that is not only sweet, but so varied, that one would imagine that he was surrounded by a hundred different sorts of birds, when the little warbler is near. From this circumstance we named it the mocking-bird." (CVW, p. 656). As a matter of fact, it is the tui that is the mimic, and when he sings his harsh notes, *kree, kraw, krurr,* etc., I believe he is imitating the bell-bird. The latter is able to use the harsh notes artistically, as she does in the whisper-song (21) above.

Chatham Island bell-bird.—Like the former, but larger. I have neither seen nor heard this bird.

Family : Xenicidae

There is no representative of this family in Britain, and only one in New Zealand:

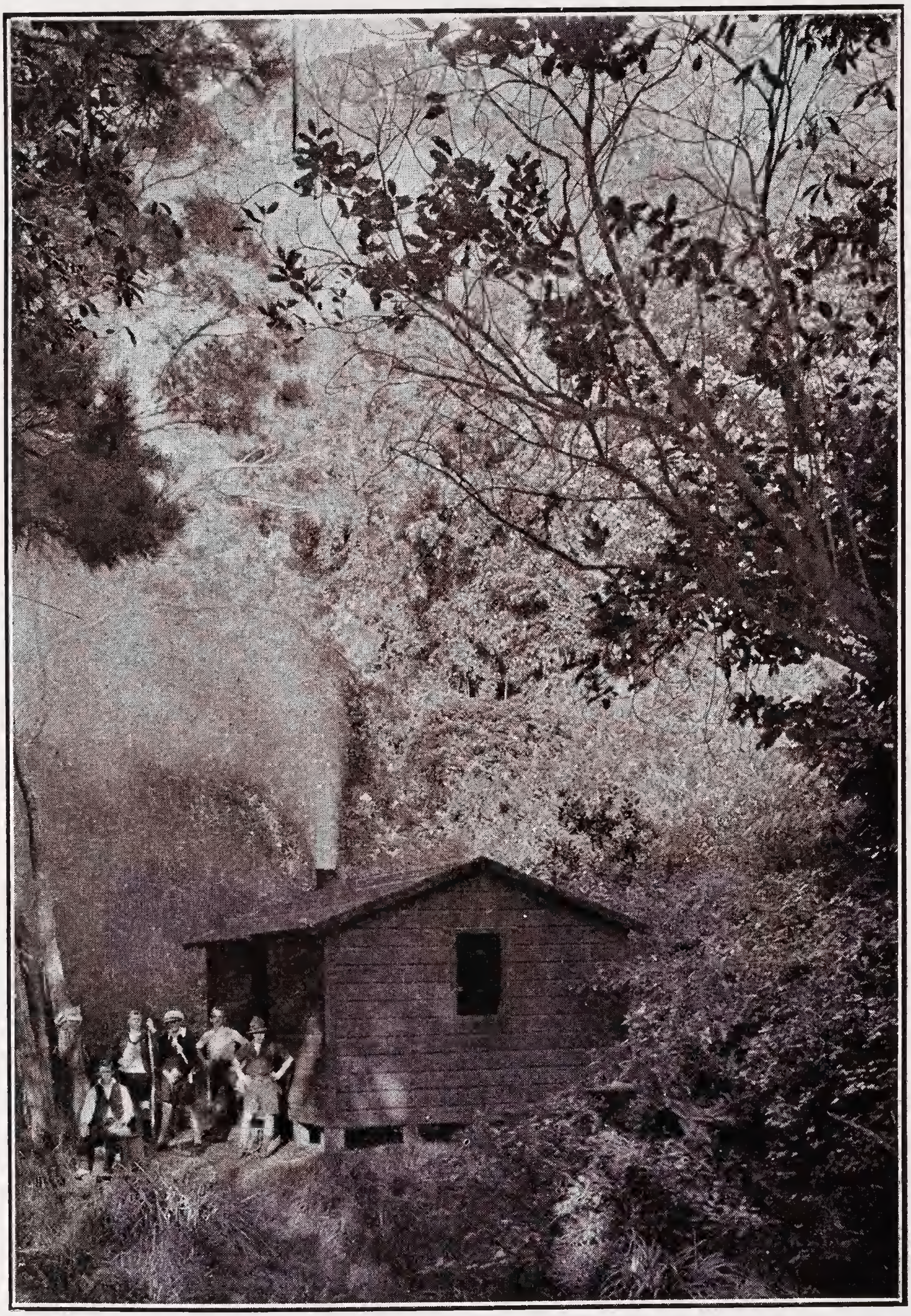
Acanthidositta chloris	the rifleman	titipounamu

Male—Green above, wing-feathers dark brown edged with green, a white line over the eye; below, white, tinged with yellow on the flanks; tail black with a yellowish-white tip; eye dark brown. Female—Brownish-white, streaked with dark brown above; below white. This is the smallest bird of New Zealand, its total length being 3 in., of which the tail is a quarter of an inch. It is sometimes called a wren, and is usually seen in pairs, flying low in jerky feeble flight, or creeping among the lichens and mosses that clothe the stems and branches of the bush trees.

Eggs.—Three to five; white and glossy; almost round, being a little over half an inch in length, half an inch in breadth.

Nest.—In holes of trees or among roots; Potts (Tr., Vol. 2, 1870, p. 57) noted one built in a roll of bark that hung suspended in a thicket of convolvulus.

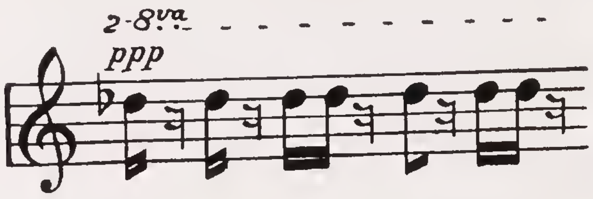
It has a chirping, continuous note, that does not often blossom into song. It is very highly pitched, hardly louder than the faint chirping of a cricket, but not at all shrill, except when the bird puts more energy into it, when it is inclined to become almost rasping like the cricket's chirr. The note is uttered when the bird is alone, as well as when there are two or more together. It moves with flicking wings from spray to spray, opening its bill a little at each note; but so quickly that, partly also obscured by the bird's constant motion, the movement of the bill can hardly be seen. The note, which may be broken, as in (1), or more continuous as in (2), is at times vocalized *titit,* or *tutut*; and is often thus sounded in twos *tutut, tutut,* as the bird runs up the bark of the trees. The effect is curious when the bird is running up a vine in its jerky fashion: it is *tutut,* and a little jerk upwards: *tutut,* and another jerk of

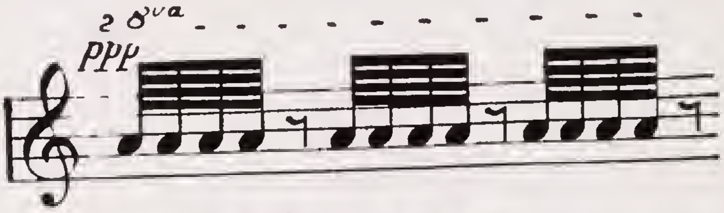


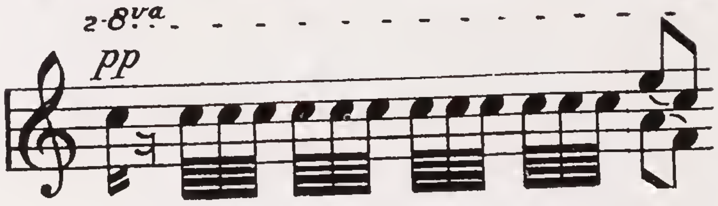
[*Wells, photo*

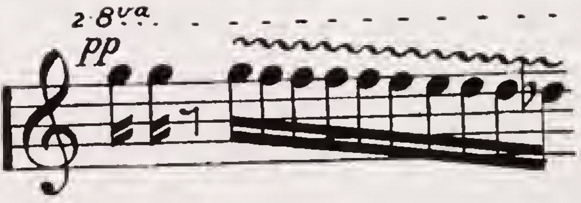
Hut at Waterfall, Kapiti, looking towards view-point of scene at p. 152; mahoe on the right, tree-manuka on the left; nettles to the right of the hut.

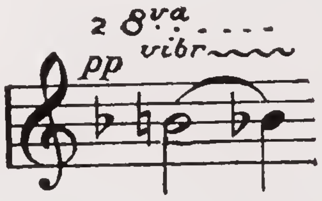
a few inches; as though the bird had to wind itself up at each movement, and one heard the snapping of the tiny pawls of the winding gear. When the note was strengthened, the vocalization changed from *titit* to *tutut*. In (3) there is an approach to song, the call being rounded off with a slur, varying in pitch from time to time. The notes of (3) are considerably faster than the chirr of the cricket, there being twelve notes or more in a second, the note having the effect of a vibrato. At times the vibrato runs down the scale in fractions of a tone, as in (4), when there were ten or eleven notes in a regular drop from *g* to *d* flat. This phrase was the reply of one rifleman answering another in the twilight. Some notes, sounding like *tsip, tsip,* were faint chirps, uttered by the birds as several of them were with much alertness running up branches, constantly flicking their wings, thrusting black thin gleaming bills into every crevice, examining every possible lurking-place with dark bright eyes. I took their eyes to be black; but the naturalists say they are dark brown. The breasts were soft silvery grey, closely speckled with dark brown under the throat and on the upper breast, the back darker in colour. On one occasion when I was calling a fantail, a young rifleman came and alit on a twig immediately before my face; and every time I called it stretched towards me, with wings outspread and fluttering, and with mouth agape uttered the long-drawn vibrato of (5).

1


2


3


4


5


It apparently took me for its mother; but the true mother presently came, sat close beside her extravagant nestling, and coaxed it away.

Of the sixteen Maori names recorded (WJ, p. 199) the one most commonly used is titipounamu.

Family: Cuculidae

THE CUCKOOS

There are two species of cuckoo that are said to visit New Zealand; and these, in their migratory and parasitical habits, resemble the European species. They are:

Chalcococcyx lucidus	the shining, or bronze-winged cuckoo	pipiwharauroa
Urodynamis taitensis	the long-tailed cuckoo	koekoea or kohoperoa

The shining cuckoo.—Above, metallic bronzy green; below, white, barred with bronzy-brown; outer tail-feathers barred with white, the second with rufous; forehead, freckled with white; eye black. The sexes are alike. The young are duller in colour, and the bands on the lower surface are more numerous and not so distinct. Total length 7 in., of which the tail is $2\frac{3}{4}$ in.; spread of wings $11\frac{3}{4}$ in. Because of the barring across the breast, it is known in parts of the North Island as the zebra-bird.

It is one of the most remarkable of the many remarkable birds of New Zealand. Supposing the fact of its migration to be accepted, in its flight it covers upwards of 1,000 miles of open ocean. When it was stated by Colenso (TJ, Vol. 2, 1846, p. 227) in 1842 that New Zealand possessed migratory birds, it was supposed by European naturalists that a mistake had been made, since up till that time the greatest distance travelled over water by migratory birds was 300 miles (Tr., Vol. 33, 1901, p. 252). The observations of Colenso were, however, accepted as fact, and it was afterwards stated that the bird wintered in New Caledonia, Australia, and Tasmania (JP, Vol. 1, 1892, pp. 181-2), or in New Guinea (Tr., Vol. 42, 1910, p. 405). The migratory flight is supposed to be rather between New Caledonia and New Zealand........than between Australia and New Zealand; for the birds apparently arrive from the north, spreading south to the South Island; and on preparing to leave, the birds work northwards again. It is not known how long they take on their journey. Hutton states that the 300 miles flight referred to means eleven hours continuous flying; but an average of only 27 miles an hour seems a slow flight for a bird, considering that many swift fliers are able to maintain themselves all day on the wing in the natural course. At a like speed the journey between New Caledonia and New Zealand should occupy at least 36 hours. It probably does not take so long, however. The American passenger pigeon is able to cover 1,600 miles in 24 hours (WW, pp. 214-5), and the shining cuckoo is probably able to cover the shorter distance in as short a time; or a little longer, allowing for the difference in the size of the birds, the pigeon being 16 inches long with a wing-spread of 24 inches, as against the cuckoo which is 7 inches long, with a wing-spread of 11¾ inches.

One of the favourite landing places is said by the Maori to be on the Maunganui Bluff, 25 miles south of Hokianga, towards the extreme north of the North Island, where the birds may be seen in numbers after their arrival, generally in a state of exhaustion. (JP, Vol. 1, 1892, pp. 181-2). Its actual arrival has not, however, been seen, nor has its departure, so far as can be learned, though a possible gathering of the long-tailed cuckoo has been seen, as noted later. Buller (BN Suppt., Vol. 2, p. 101) remarks, without comment,—"Dr. Ramsay states that this bird has been caught at sea between Lord Howe Island and New Zealand, doubtless whilst migrating from the latter to the former island."

On the other hand, the gathering for migration and departure of the godwit has been seen and described by James Buckland (EI). "The beach was literally covered with kuaka (godwit); they seemed to be all indiscriminately huddled together where there was no room for half the number, while thousands were hovering overhead in a vain attempt to obtain a footing, or were trampling on the backs of their fellows in the hope of ousting them from their places........ During the afternoon flocks of kuaka kept pouring into the bay (Spirits Bay, near Te Reinga, at the extreme north of the North Island), each new lot adding to the mad unrest........ At length, just as the sun was dipping into the sea, an old cock uttered a strident call and shot straight into the air, followed by an incalculable feathered multitude. Higher and higher rose the host until it was but a stain in the sky. At this stupendous altitude—in a moment of time as it seemed—the leader shaped his course due north and the stain melted into the night........ In this manner and for ten days, flocks of kuaka continue to arrive at and depart from Spirits Bay........ With the coming of August—having meanwhile reared its brood—it begins the voyage to its Southern home. As the young birds are at that time incapable of an extended flight, it returns much more leisurely than it went........ The spring sunshine of October welcomes the wanderer home to Te Reinga.........'' The departure described took place in April, the destination and breeding place of the birds being the coasts of Siberia. It is a curious fact that Spirits Bay is also the point of departure for the souls of the Maori dead. Here they descend into the sea by means of roots of a pohutukawa, and proceed under water to their unforgotten fatherland.

It is known that, in clear weather, migrating birds fly at a great elevation—between one and two miles. The reason for this is not known. One surmise is that the bird keeps two land-surfaces in sight; the one it is leaving, and the one it is making; but this cannot be correct, since a great deal of migration takes place during the night; and the New Zealand cuckoo, in order to be able to keep two land surfaces in sight, would be compelled to ascend approximately thirty miles. Another surmise is that it is less tiring flying in the cooler upper air; but against this is the fact that the rarer atmosphere makes effort more laborious. Another is that the air-currents may be more favourable in the upper strata; and there may be reason for this surmise. At any rate, the cuckoo usually arrives in New Zealand with a northerly wind, more generally towards the middle or end of September, though its appearance earlier has often been recorded. Taylor writes (TI, p. 406) that their first feeble cry may be heard in August. It leaves about February, though occasional birds have been seen as late as April.

The domed hanging nest of the riroriro is the one most favoured by the cuckoo; and as the opening to this nest is in the side, and is too small for the entrance of the larger bird, she lays her egg on the ground or on the stump of a tree, and carries it, either in her beak or in her claws, and inserts it in the nest. Stowell writes that the act has been observed: "the Maori has frequently seen the 'wharauroa at this work. For about eight months in the year the Maori roamed the bush

Mrs H. Nelson, Tolaga bay, gives dates of hearing pipiwharauroa at farm 6 miles from the bay:

1928, 26 Sept.
1929, 4 Oct.
1930, 7 Oct.
1931, 23 Sept.
1932, 24 Sept.
1933 --
1934, 28 Sept.

1935, 1 Oct.
1936, 26 Sept.
1937, 12 Sept.
1938, 18 Sept.
1939, 16 Sept.
1940, 10 Oct.

letter 10 Oct. 1940, following my talk on the air on 26 Sept., when I spoke of the pipiwharauroa.

Whilst this may be so as regards the long-tailed cuckoo, it is possible that the shining cuckoo may, at least occasionally, lay in the nest itself,—for I have been assured that she has been seen tearing the opening until large enough to admit her; and that the warblers, on returning to the violated nest, have repaired the injury so effectively that no trace of the injury remained;—so that had the cuckoo's egg been found after the repairs had been effected, it would have been supposd that the egg had been inserted into the nest, and not laid there.

The egg of the shining cuckoo is described by Potts (Tr., Vol. 2, 1870, p. 65), as elliptical in form, pale greenish-dun in colour, as the sun was dipping into the sea, an old cock uttered a strident call and shot straight into the air, followed by an incalculable feathered multitude. Higher and higher rose the host until it was but a stain in the sky. At this stupendous altitude—in a moment of time as it seemed—the leader shaped his course due north and the stain melted into the night........ In this manner and for ten days, flocks of kuaka continue to arrive at and depart from Spirits Bay........ With the coming of August—having meanwhile reared its brood—it begins the voyage to its Southern home. As the young birds are at that time incapable of an extended flight, it returns much more leisurely than it went........ The spring sunshine of October welcomes the wanderer home to Te Reinga.........'' The departure described took place in April, the destination and breeding place of the birds being the coasts of Siberia. It is a curious fact that Spirits Bay is also the point of departure for the souls of the Maori dead. Here they descend into the sea by means of roots of a pohutukawa, and proceed under water to their unforgotten fatherland.

It is known that, in clear weather, migrating birds fly at a great elevation—between one and two miles. The reason for this is not known. One surmise is that the bird keeps two land-surfaces in sight; the one it is leaving, and the one it is making; but this cannot be correct, since a great deal of migration takes place during the night; and the New Zealand cuckoo, in order to be able to keep two land surfaces in sight, would be compelled to ascend approximately thirty miles. Another surmise is that it is less tiring flying in the cooler upper air; but against this is the fact that the rarer atmosphere makes effort more laborious. Another is that the air-currents may be more favourable in the upper strata; and there may be reason for this surmise. At any rate, the cuckoo usually arrives in New Zealand with a northerly wind, more generally towards the middle or end of September, though its appearance earlier has often been recorded. Taylor writes (TI, p. 406) that their first feeble cry may be heard in August. It leaves about February, though occasional birds have been seen as late as April.

The domed hanging nest of the riroriro is the one most favoured by the cuckoo; and as the opening to this nest is in the side, and is too small for the entrance of the larger bird, she lays her egg on the ground or on the stump of a tree, and carries it, either in her beak or in her claws, and inserts it in the nest. Stowell writes that the act has been observed: ''the Maori has frequently seen the 'wharauroa at this work. For about eight months in the year the Maori roamed the bush weekly and even daily—for bird, berry, and root foods. His work—unlike that of the noisy bang, bang, fowling piece of these days—was silent work. The snaring and spearing of birds was a quiet process. For days together the Maori would be perched on a tree from which he could see everything that was going on about him. He saw the 'wharauroa select its nest and proceed, sometimes, to toss out the true eggs, with its bill. It sometimes crushed them in doing so, and sometimes ate them. It laid its own egg either on a stump, the barrel of a prone tree, or on the leafy ground. It then took the egg, at times in its bill and at times in its claws,—and put it into the nest. It worked silently and quickly, and sometimes remained concealed in the vicinity as if to see what the riroriros would do with its egg. I never heard the Maori say that the riroriro or other foster-mother tossed the intruding egg out of the nest, so I conclude that they were never known to do so. Neither have I heard of the 'wharauroa coming back to assist in feeding its chick.''—(Manuscript).

Whilst this may be so as regards the long-tailed cuckoo, it is possible that the shining cuckoo may, at least occasionally, lay in the nest itself,—for I have been assured that she has been seen tearing the opening until large enough to admit her; and that the warblers, on returning to the violated nest, have repaired the injury so effectively that no trace of the injury remained;—so that had the cuckoo's egg been found after the repairs had been effected, it would have been supposd that the egg had been inserted into the nest, and not laid there.

The egg of the shining cuckoo is described by Potts (Tr., Vol. 2, 1870, p. 65), as elliptical in form, pale greenish-dun in colour, and measuring $\frac{3}{4}$ in. in length and $\frac{1}{2}$ in. in breadth. It is described by Buller as greenish-white or very pale olive in colour, often clouded or stained with brownish-grey. He also mentions one of a pale creamy colour, one pure white, one olivaceous-grey, perceptibly darker at the larger end, and very minutely granulated with brown over the entire surface.

Eggs have been found in the nests of other Maori birds than the riroriro,—such as fantail, robin, and tom-tit; also in the nests of introduced British birds,—the blackbird, chaffinch, and sparrow, and Fulton states that the eggs varied "according to the host imposed on" (Tr., Vol. 42, 1910, pp. 401-2). With reference to the last remark, it has been supposed that the extraordinary variation in the coloration of the egg of the European cuckoo,—an egg which is also remarkably small when compared with the size of the bird,—is explained by its parasitical habit; it is said to place its eggs in the nest of the bird whose eggs its own most nearly resemble. Until quite recently it had not been proved, however, if each hen lays eggs of a particular coloration, or if each lays variously-coloured eggs. In one instance, it is true, a cuckoo was shot as she was leaving the nest of an Icterine warbler, and in her oviduct was found an egg very like that of the warbler; and in the nest was "an exactly similar egg, which there can be no reasonable doubt had just been laid by that very cuckoo." (ND, Vol. 1, p. 122). But surely a reasonable doubt at once arises: if one egg had just been laid, the second egg would hardly have the shell already formed, and certainly the coloration would not have taken place (See ND, Vol. 1, p. 185). If, therefore, the egg in the nest was exactly similiar to the one in the oviduct of the bird destroyed, there can be no reasonable doubt that the former had been laid by some other bird, and not by the one destroyed.

The difference in coloration of the European cuckoo's eggs is well shewn in Seebohm's book of British birds' eggs (SE, pl. 49), and the reviewer of the book in the "Pall Mall Gazette" (15th Jan., 1897), remarked: "When Parliament was considering a measure for the protection of the eggs of wild birds, Professor Newton pointed out the exceeding difficulty of identifying the eggs of different species, and vowed that, for his part, he would not be prepared to pronounce on the identity of any egg which he had not seen laid. The force of this objection may be realized on turning to plate 25 of the present [Seebohm's] volume, where six eggs of the common guillemot are given as representing the typical varieties. The difference between them is surprising: the ground colour varies from white to buff, fawn colour, pale brown, pale blue, and full blue, while the markings are of every shape on different eggs, from scattered blotches to delicate reticulation, and range from russet brown to jet black........" There is also great variation in the coloration of the eggs of the shrike (OC, p. 181).

I had made a number of notes on the contradictory statements regarding the cuckoo and her habits, but these are no longer necessary since the publication in 1922 of that romantic book, "The Cuckoo's Secret," by Edgar Chance. The results of his four years of observation have caused us to remodel our ideas about the cuckoo altogether. Apparently she is a most methodical bird, each one having her definite laying area. The area particularly observed was about a quarter of a mile across, and nine meadow-pipits built there, each in its own circumscribed area. The cuckoo whose ground this was took observations of all the pipit nests, knew when each one would be ready for her egg, and apparently made a mental note that on such and such a day such and such a nest would be ready, another on a later day, and so on through the season. Her usual number of eggs is from six to twelve in a season, but by manipulating the nests Mr. Chance was able to induce her to lay twenty-one in one season. One of my boy friends tried the same experiment on a sparrow, and it laid thirty; he tried it on a thrush, and she sulked for the rest of the season.

The cuckoo chooses the nests of a particular bird; one may choose a hedge-sparrow,—this one chose the pipit. The eggs of any particular female are all alike, though those of different females differ sufficiently to be separated. They choose the same ground, the same foster-birds season after season; and if the cuckoo lays in the nest of a species different from the one chosen, it is only because accident has caused there to be no nest ready when the egg is ready. An egg is laid every other day, and in the afternoon between 3 o'clock and 6 o'clock; other birds lay in the morning.

The cuckoo was able to visit a nest, remove one of the eggs, lay her own, and be away again in eight seconds. The egg removed was either eaten on the spot, or taken away and eaten at leisure. Most remarkable of all, the pipits did not seem to resent the laying of the egg. They made a fuss, but it seemed perfunctory, for they did not desert the nest. Some of them, on the nest being ready, would actually fly up to the watching cuckoo, as if to invite her down. She would fly with them, inspect the nest, and later on come and lay her egg there. Apparently the pipits knew that she took an egg when visiting the nest to lay, for on two occasions when she paid the visit but did not lay an egg or remove an egg, the pipits themselves removed one. They were able to tell the difference between the cuckoo's egg and their own quite well; for if a cuckoo had laid in the nest and the egg were removed and another smaller egg substituted, they deserted the nest; if another smaller egg were substituted for one of their own, however, they did not mind. More, when the young cuckoo was in the nest, the pipit did not mind when he turned out other eggs that might be there. In one instance the mother was on the nest when the egg was being turned out;—she appeared to raise herself so as to make it easier for the young cuckoo to do as he wished. The reason a cuckoo does not lay more than one egg in a nest is, of course, because of this seemingly unnatural habit. One case has been observed where by some accident two eggs were laid in one nest; the young cuckoos, when hatched, tried to turn each other out, and both succeeded!

Mr. Chance became so familiar with the methodical habits of the cuckoo that he was able to say in which nest the next egg would be laid; he was even able to send for a cinema man to take pictures of the cuckoo entering the nest to lay, and of her leaving with a pipit's egg in her beak, and of a young cuckoo turning out eggs and young. It takes twelve or thirteen days for the egg of the cuckoo to hatch, and in three weeks the chick is able to take care of itself. When sitting in the tree watching, and before laying, the female utters a peculiar bubbling note; it is the male that cries "cuckoo."

The observations by Mr. Chance throw a flood of light on this subject, that was so puzzling, and New Zealand observers will now have something more definite to go on in watching our own cuckoos. No doubt the habits of our two cuckoos are similar. There is much to learn of those habits; our ignorance is disquietingly amazing; and opportunity becomes less and less as years go on and the Maori bush becomes more and more restricted in area.

There must be some fascination about a young cuckoo, for the pipiwharauroa sitting on a branch crying for food, as it does incessantly, will be fed not only by the warblers who hatched it, but by any tui, makomako, warbler, tom-tit, robin, brown creeper, canary, or blight-bird that may hear it, displaying a goodness of heart entirely different from that of the cuckoo. It may be, however, that in our ignorance we misjudge the young bird, as we misjudged its mother.

In the comprehensive work on Australian birds that has been issuing, part by part, since 1910, Mathews writes (MB, Vol. 7, p. 353) in connection with the shining cuckoo, the pipiwharauroa:...."I make a suggestion here which may seem absurd, but may lead to good results. As no specimens in quantity which can be truly referred to lucidus have been met with outside New Zealand, the conclusion would be that it did *not* migrate from that Dominion, but that it remained there throughout the year. This means that the observers in New Zealand must recommence their studies and look for the species during the months it is silent. It is apparent from the records that its 'arrival' has been generally accepted by the hearing of its note, and its departure likewise credited to its silence. As birds have been met with later than usual, I now suggest that the Neo Zealandic cuckoo, known as Lamprococcyx lucidus [*Chalcococcyx lucidus* in this book] is not migratory, but that it is a permanent resident in New Zealand, probably making internal movements according to the seasons.''

It is a fact that the bird has been known to winter in New Zealand, occasional birds having been seen during months long after the final departure is supposed to have taken place. I had notes in 1920 of birds being seen, at Hanmer on 25th April; at Te Koa, North Auckland, on 1st and 5th June; and at Mahunoa, near the Tararua mountains, on 11th July. If occasional birds are able to winter here, and do so, why not many? There is local migration by other birds, and other birds are silent during part of the year. Months may pass without a warbler, fantail, or blight-bird, for instance, being seen or heard about Wellington,—then suddenly one or other of them will appear, and may be seen or heard every day for an indefinite period. It depends partly upon food-supply, partly upon moulting,—and there may be other reasons. During a greater part of the year thrushes and blackbirds are most voluble, and may be seen in great numbers about Wellington; but for two months at a time, say during February and March, or into April, not a single bird may be seen or heard. There is this difference, however, between the Maori and the naturalized birds, the former make comparatively distant district migrations; the latter keep close in thicketed gullies quite near their usual haunts. A faulty human observation often attributes to birds habits they do not possess, even as on the other hand birds possess habits that have been observed wrongly, or have escaped observation altogether. A signal example of this is revealed in the study of the English cuckoo by Mr. Chance above referred to. The significant fact is that cuckoos have never been observed leaving New Zealand, and have never been observed arriving, except according to Maori tradition.

The cry of the European cuckoo is well known; it is recorded in music, in song, in poetry, even in clocks and whistles. The very earliest English song whose music is known, the beautiful canon *Sumer is icumen in,* written about the middle of the thirteenth century, sings of the cuckoo, though the characteristic call of the bird is not imitated in the music. "Towards the middle or the end of June," writes Yarrell, (YH, Vol. 2, p. 390), "its cry is no longer the 'plain song' that was heard on its arrival (in April); it becomes rather harsher in tone, and its first syllable or note is doubled. Soon after it is no longer heard at all........" This change of note is referred to by John Heywood in No. 95 of his Sixth Hundred of Epigrams, "Of Use":

> Use maketh mastery: this hath been said alway;
> But all is not alway, as all men do say,
> In April the cuckoo can sing her note by rote;
> In June, out of tune, she cannot sing a note:
> At first, cuckoo, cuckoo, sing still can she do,
> At last cuck, cuck, cuck,—six cucks to one cu.

It begins early in the season with a minor third, proceeding to a major third, a fourth, a fifth, after which its voice breaks without attaining a minor sixth.

Gungl, in his "Cuckoo Galop," gives the call of the cuckoo as B natural and G sharp. Dr. Arne, in his music to the cuckoo's song in "Love's Labour's Lost," gives it as C natural and G (HS, p. 151). On a Swiss-made cuckoo-whistle I have, the notes are G sharp and E, a major third; and I have heard whistles with other intervals. It must be remembered, however, that the pitch of pianos or other instruments by which notes may be recorded, may differ, concert pitch on a piano being a tone or more above ordinary pitch.

In Beethoven's *Pastoral Symphony* the notes of the nightingale, quail, and cuckoo are imitated; here the interval is E to C, a minor third, and the same interval, a semitone lower in pitch, is used by Humperdinck for the cuckoo instrument in the *Forest Scene* (Act II.) of *Hansel und Gretel* (FO, p. 289).

In Browning's poem, "A Lover's Quarrel," stanza 18 mentions the call:—

> Here's the spring back or close,
> When the almond blossom blows;
> We shall have the word
> In a minor third
> There is none but the cuckoo knows:
> Heaps of the guelder-rose!
> I must bear with it, I suppose.

Some years since a critic, I think in one of the English magazines, remarked that Browning was wrong;—the notes were not a minor third, but a major fourth; but apparently the poet and the critic referred to notes at different seasons; Browning to notes of April, the critic to those of a later date.

Watson writes (WW, p. 64) that the British cuckoo has, besides the ordinary notes which give its name, a distinct cry in addition, which "constitutes a love song, and may be represented by a succession of the initial syllables, *cuck-cuck-cuck-*, dying away into a prolonged *oo-o-o-o.* This cry is uttered when flying, and the more deliberate and finished '*cuck-oo*' usually comes from the bird when perched on some rail or fence." Compare this with Heywood's couplets above. The vocalization of this love-song is almost the same as that of the cry of the blue petrel of New Zealand, which Buller writes consists of "three short notes repeated in rapid succession and followed by two long ones, thus: *kŭk-kŭk-kŭk-cōō-cōō*"; he writes that "the note much resembles the cooing of pigeons." I have never heard this cry.

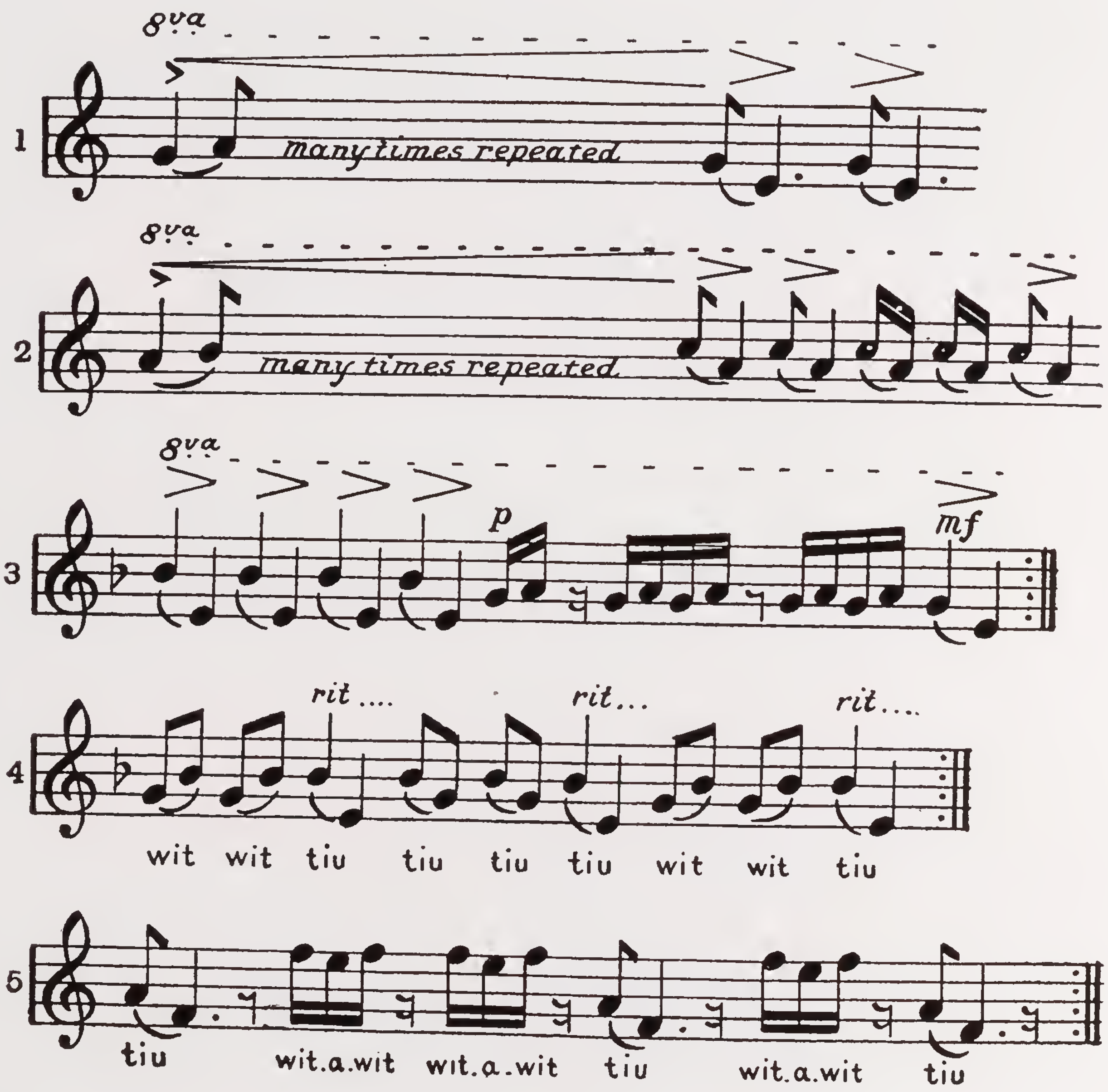
Both Yate~~s~~ and Taylor have confused the two New Zealand cuckoos in the matter of their song. Yate~~s~~ (YN, pp. 64-5) gives an excellent description of the beautiful appearance of the bird—pipiwawaroa he calls it—"a small bird, of very beautiful plumage, in almost every variety; green, white, purple and gold are, however, the prevailing colours: the feathers under the tail are white, spotted with brown: those on the breast and throat are marked with broad lines of white and deep brown; the wings are very delicate purple, tinged with gold. The eye is a piercing hazel. It has no song; is easily caught; and feeds upon the small insects found in the bark of the kauri tree." This is good, save for the error regarding the song.

Taylor says of the long-tailed cuckoo kohoperoa (TI, p. 405) "........It is a sweet singing bird, but is only heard during the warmest months of the year, when it sings all the night." Of the shining cuckoo, called by him piwarauroa (ib., p. 406) "........It has a very peculiar shrill note. When first heard in August, its cry is feeble, *kui kui te ora,* complaining it is cold; but as the summer advances, and the sun becomes warm, its note changes to *witi ora, witi ora,* I am warm. There is a saying, if it continues to cry *kui kui* it will be a cold summer; but if it sings *witi ora witi ora,* it will be a warm season. These two birds are said to divide the year between New Zealand and Hawaiki, arriving in September and leaving in March.'' The words should be *whiti ora,* not *witi ora*; but many of the early men either did not hear the aspirate, or disregarded it if they did hear it.

It is the long-tailed cuckoo that has the peculiar shrill cry; it is the shining cuckoo that is the sweet singer. Its note is altogether different from the characteristic cry of the English cuckoo, and few people in the South Island know the bird at all; those who know it in the North know it as the 'wharauroa, and usually do not think of it as a cuckoo. Its usual cry is as in (1). This is a series of upward slurs, indefinite in number, gradually increasing in loudness, and dying away in the final downward slur. The gradual increase gives the ventriloquous character to the cry that has been remarked on by various writers. The first note of every upward slur is accented, the second usually staccato. At times more than a single downward slur follow. The interval and the pitch of both upward and downward slurs may vary during the one day. I have not noticed that the interval increases as the season advances; the chief change due to the advance of the summer is in the greater fulness of song;—that is, at first the upward slurs only are sung, in a clear whistle; then a downward slur is added; or two slurs; or more, as in (2).

Still fuller is the theme of (3), which followed the upward slurs; this and the variant (4) were more heard on hot northwest days, such as are fairly frequent in Canterbury summers. The whole of these notes were taken at Stony Bay, with the exception of (1), which was taken in Wellington. The variant (5) followed the ordinary upward slurs, was also taken in Wellington. At times the vocalization *kui kui* might well be applied to the upward slurs; in (1) they are vocalized *wit,* a vocalization also appearing in (5).

The number of repetitions of the slur appears to be altogether arbitrary; I have not been able to detect any regular recurrence or order, and Potts, writing on this subject (Tr., Vol. 6, 1874, pp. 148-9) observes.—"Having long since taken an interest in bird notes, many observations have been made on those of the whistler (shining cuckoo); yet repeated attempts have failed to discover any guide why the number of its notes should so greatly vary; whether the bird's call is affected by the state of the atmosphere, temperature, the force of the wind, or the quarter whence it blows. At all hours it may be heard in its season, but at night the call seems most sustained, both as regards the distinct notes or whistles, and the remarkable song or flourish with which it often ends the performance.


8va
1
many times repeated
8va
2
many times repeated
8va
3
p
mf
4
rit....
rit...
rit....
wit wit tiu tiu tiu tiu wit wit tiu
5
tiu wit.a.wit wit.a.wit tiu wit.a.wit tiu

"Some notes, taken from October 25th to November 10th:—11.30 p.m. to 1 a.m., 14 to 34; 3.45 a.m., 18 to 41; 4.45 a.m., 15 to 24; 6.45 a.m., 13 to 25; 11.45 a.m. to 0.20 p.m., 3 to 42; 4.30

p.m., 11 to 35; 6 p.m., 12 to 44; 9 p.m. 18 to 68; 10.5 p.m., 17 to 64; 11 p.m., 25 to 107.

"The notes do not include the terminal song or flourish............ In the early morning the call of the cuckoo is certainly more plaintive in tone than at other times. The call is delivered without that evident labour which accompanies the outpourings of some species of birds. Whilst performing it sits rather low on its perch, its head is slightly raised, the bill pointing rather upwards, the head is slowly moved from side to side."

Whilst this common cry, the "*coo-ee*" of the cuckoo, is heard at once and hailed with pleasure by the few who know and recognize it, it is quite unknown and comes unnoticed so far as most people are concerned, and probably this will always be so; it will never be the familiar and welcome sound that the cry of the European cuckoo is to child and adult alike on the far side of the world. The seasons here are so mild and equable, so little contrasted, that it is hardly noticeable to the casual observer that the wandering voice and the summer come together.

Circumstances were very different with the Maori; the seasons made more difference to him; and he welcomed the 'wharauroa, the shining cuckoo, as a harbinger. *Ka tangi te wharauroa, ko nga karere a Mahuru,* says the proverb (GK, p. 44); "If the shining cuckoo cries, it is the message of Mahuru";—Mahuru being the spring personified, according to a prevalent and much-loved custom of the poetical Maori. On first hearing the welcome cry, the children greeted the bird with the following song, collected by Elsdon Best:—

E manu tena koe. Kua tae tenei ki te mahanatanga. Kua puawai nga rakau katoa.
Kua pa te kakara ki te ihu o te tangata. Kua puta ano koe ki runga, tioro ai.
Tioro i te whitu, tioro i te waru. Me tioro haere ano e koe tenei kupu e whai ake nei, ki te marae o tama ma, o hine ma: *Kui, kui, kui, whiti whiti ora.*

O bird, greeting to you. The warm season appears and all trees have blossomed.
The fragrance reaches the nostrils of man. You again appear trilling on high.

Trilling in the seventh (month), trilling in the eighth (month). Trill you ever forth as you fly
The following message to the homes of lads and lasses: *Kui, kui, kui, whiti whiti ora.*

As its home was supposed to be in the Maori fatherland, it was known as "the bird of Hawaiki"; and it has been thought possible that the migratory flight of the cuckoo from the mid-Pacific Hawaiki encouraged the adventurous seafaring Maori to come so far south as New Zealand, in search of the land made by the bird (JP, Vol. 16, 1907, p. 93). It is said that at a certain point on the voyage of one of the canoes of the great Maori migration from Hawaiki to New Zealand, the captain liberated his two pet birds, but no explanation is given. Presumably they would rise, and seeing the land that was invisible to those in the canoe, make for it, and so guide the voyagers thither (JP, Vol. 16, pp. 92-3). There are, also, circumstantial details in an old story shewing how a pet 'wharauroa was used as a messenger to a chief who had left Hawaiki and settled at Rangi-atea (JP, Vol. 22, 1913, pp. 202-3). Stowell says that their coming over the sea, and landing exhausted at Maunganui Bluff, has often been observed by the Maori; and the bird is said to carry in its claws a small pebble, usually white, the size of a farthing, which it licks during flight when thirsty, to satisfy the craving for water. He states that the stones have often been picked up on the bluff, or taken from the newly-arrived exhausted bird. The kaka, when flying any great distance, is similarly said to carry a piece of bark for the same purpose; and the Maori imitated the bird; for when undertaking long journeys on foot, in summer or autumn, they would place a leaf, preferably of mahoe, between the lips, and lick or suck it when thirsty. "I can vouch that this was quite satisfying," writes Stowell; "and that we could cross streams without wanting to stoop and drink." The boys at Gallipoli, too, prevented aggravation of thirst by keeping a pebble in the mouth. The migration pebble and the bark were called "O," which means "provision for a journey." The O and the migration of the bird are both referred to in the following portion of an ancient whakatapatapa maara, or song of a company when digging a kumara plot—a song dating back seventeen or eighteen generations:—

Pipiwharauroa
Te manu i whiti mai
I tarawaahi
Me to o ano ki te wae mau ai,
Nau mai.

The shining cuckoo
The bird which has crossed hither
From beyond the sea
With the O carried in its foot,
Welcome.

"If asked to give an example of the early but vigorous song of the pipiwharauroa," writes Stowell, "I should put it in this way:—

Ko-o-o-o-e, ko-o-o-o-e, ko-o-o-o-e, ko-o-o-o-e,
Ko-o-o-o-e, ko-o-o-o-e, ko-o-o-o-e, ko-o-o-o-e,
Whi-ti-i-i, whi-ti-i-i, whiti-whiti-o-ra, whiti-o-o-ra, whiti-o-o-ra,

and so on." He substitutes koe for kui, but the above could well be a representation of the song (1) with the conclusion (4), the wittiu representing perhaps, to other ears, whiti-ora.

The parasitical habits of the bird, are referred to in the proverb *Penei me te pipiwharauroa,* (GK, p. 80)—"He is just like the bronze-winged cuckoo" (deserts his children, or has illegitimate children).

Of the eight Maori names recorded (WJ, p. 200), the one commonly used is pipiwharauroa, and this is usually contracted to 'wharauroa.

The long-tailed cuckoo.—Above, brown, banded, and streaked with rufous; below, white with longitudinal streaks of dark brown; eye, reddish-brown. The sexes are alike. The young have the upper surface brown, spotted with fulvous-white; the lower surface rufous-white, streaked with dark brown. Total length 16½ in., of which the tail is 9¾ in.; wing-spread 21 in.

Egg.—Brownish olive, sometimes clouded with brownish-grey. Length, about three-quarters of an inch. It is a matter of difficulty to find the egg, and to identify it when found.

This cuckoo is sometimes called the screamer, from its loud shrill note. It resembles the shining cuckoo only in its parasitical habit, and in the mystery of its migration. It arrives later—towards the end of October or the beginning of November, and leaves in January or February (Tr., Vol. 33, 1901, p. 258).

Its movements are not traced so easily as those of the 'wharauroa, as it seems to move about chiefly at night. Its winter quarters are not certainly known; birds have been obtained in the Solomon Islands, but rarely in New Caledonia (Tr., Vol. 33, 1901, p. 258). They have also been reported in Fiji, the Friendly Islands, the Marquesas, Samoa (JP, Vol. 1, 1892, pp. 181-2), and other Pacific Islands (Tr., Vol. 36, 1904, p. 143), but the land from which they first set out on their southern migration is not known. As with the shining cuckoo, the old birds leave earlier than the young on their supposed departure from New Zealand. The white-head appears to be the bird most often chosen as host for the egg of the long-tailed cuckoo, though eggs supposed to belong to it have been recorded in the nests of the tom-tit, warbler, and blight-bird; and besides these birds, the pigeon and tui have been seen feeding the young cuckoo (Tr., Vol. 36, 1904, pp. 140-1), so they, too, may have been foster-parents;—though as before noted, birds may be foster-feeders that are not foster-parents. It once seemed doubtful if the egg was ever placed in the nest of the riroriro (warbler), as the young of the shining cuckoo fills it completely when fledged, and the long-tailed cuckoo is a much larger bird, but the insertion of the egg in the nest has actually been observed by Mr. Overton in Otago. The egg was first laid on the ground, and then carried by the bird in its beak and placed in the nest. The same observer saw a cuckoo attempt, but fail, to place an egg in the nest of a tui. There is a Maori whakatakiri, a child's song, sung to an infant in arms (Tr., Vol. 36, 1904, p. 131):—

Ko te uri au i te whenakonako,
I te koekoea.
E riro nei ma te tataihore e whangai.

7-12-22

19

THE KOEKOEA.

BY BEN KEYS.

The month of November has again witnessed the arrival in New Zealand of those annual visitors, the long-tailed cuckoos, as I am able to bear witness from having heard the nocturnal call here in Te Puke twice within the past fortnight.

This cuckoo, the koekoea, is not to be confused with the bronze or shining cuckoo, called by the Maoris pipiwharauroa. Both indeed belong to the same family, both are immigrants to New Zealand for the summer months, and both have the same parasitical habits; but the long-tailed cuckoo is a larger bird, with less striking plumage, than its better-known relative. It is found in the South Pacific Islands as far north as the Solomons, and why it should fly hither each year is one of the puzzles of natural history; but certain it is that with unfailing regularity November sees its arrival and February its departure. Its plumage, generally speaking, is brown, streaked or marked with shades of the same colour, the tail-feathers being barred with light and dark brown. The body is somewhat larger than that of a song-thrush, but the long tail gives it a much larger appearance. The female places an egg in the nest of some smaller bird, and leaves the foster-mother to the tasks of incubation and rearing the young interloper, who expels the rightful occupants of the nest soon after they are hatched.

The Cuckoo and the Lizard.

The long-tailed cuckoo is well known to the Maoris, who seem, however, to have been singularly inaccurate in their observations concerning it. They usually call it the koekoea; but there are other names, amongst these being kaweau or kawekaweau, and kohoperoa. Koekoea is derived from the word koe or koekoe, to screech; but the name kaweau or kawekaweau, is much more interesting, for it refers to the Maoris' belief concerning the origin of the bird. One use of the word kaweau or kawekaweau is as an alternative name for the tuatara, that curious reptile once not altogether uncommon on the mainland of New Zealand, but now only found on a few islets about the Auckland province and on the Brothers and other islands in Cook Strait. The tuatara, like the true lizards, was an object of intense horror to the Maoris, one reason of their aversion being the belief that evil spirits or atua took the form of these creatures when bent upon working ill to human beings. Now Kaweau, as a proper noun, was the name of a lizard-god, known in Polynesian mythology, the brother of two other gods named Tuatara and Mokomokopapa; and though the Maoris of New Zealand have, so far as I have been able to learn, no theory that the long-tailed cuckoo and the tuatara have anything in common, yet the universal belief amongst them is that the bird is a transmutation of the mokopapa or ngarara-papa, the brown tree-lizard of the settlers. I have made many inquiries of the natives as to the origin of the koekoea, and have invariably been told that in the winter time it exists as a ngarara-papa, living in the dense copses and changing in the spring-time to the form of a bird. The pretty markings on the skin of the brown tree-lizard are not unlike the plumage of the koekoea; and this fact perhaps caused the ancient Maori on his arrival in New Zealand, to retain the old Polynesian name kaweau for the bird (which, no doubt, was already familiar to him), but to attach his theory of transmutation to the ngarara-papa instead of to that other reptile which he also named kaweau (and tuatara) after his ancestral lizard-gods. The tuatara is only found in New Zealand—it was not brought from Hawaiki by the Maoris, as they assert. Nor was the mokopapa or ngarara-papa.

Theory and Fact.

I cannot, from my own enquiries, offer any explanation of the other name mentioned above—kohoperoa. But in consulting Williams' "Maori Dictionary" I find there a reference to a word used by the natives of Tahiti, viz., "hope," meaning the tail of a bird. Roa, of course, means long. So here is apparently another name brought originally from the South Sea Islands—a further indication that the earliest Maori arrivals in New Zealand had known the cuckoo before they reached this country. And for still further confirmation (though this test standing by itself is not at all to be relied upon) is the statement that the bird was found in Hawaiki, the traditional home of the Maoris from which they emigrated to New Zealand.

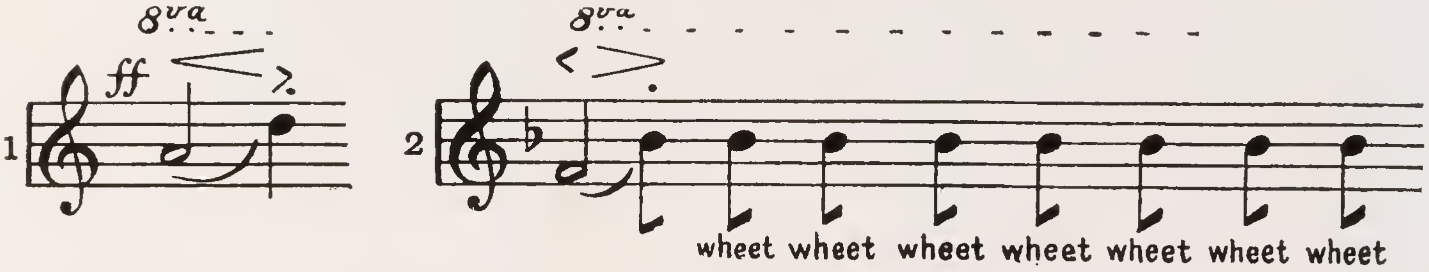
Taking all the evidence into review, it would seem that the learned among the ancestors of the Maoris knew of the widespread distribution of the long-tailed cuckoo, and of its custom of disappearing at certain times from its haunts; but they failed to observe or deduce its migratory and parasitical habits, and so invented a theory to fit the known facts. Which is a thing we sometimes do ourselves—indeed, this article is not altogether guiltless in that respect.

But that the Maoris had some inkling of the oddity of the koekoea's upbringing is proved by a saying they apply to a child whose father has abandoned it: "See, the offspring of the koekoea" (or sometimes, "of the pipiwharauroa"). A very old man of the Tapuika tribe at Te Puke recently told me that the father of the koekoea was the sun, that it was when born a ngarara-papa, and afterwards became a bird living a solitary life in the thickets, having no rest, and being altogether a mysterious creature.

Despite their dislike of the ngarara-papa (which to them was not, however, so terribly fearsome a thing as was the kakariki, or green tree lizard), the Maoris used the tail feathers of the koekoea as an adornment for the hair. Now-a-days, the feathers are thrust into the hat band and worn that way. Neither the pipiwharauroa nor the koekoea was used as food, but for different reasons—the pipiwharauroa because of the genuine affection the Maoris bore to this herald of summer warmth and ease, and the koekoea because of its supposed abhorent origin.

I am the offspring of the bronze cuckoo,
Of the long-tailed cuckoo,
Left here for the white-head to feed.

The call of the long-tailed cuckoo is a loud, shrill whistle, slurred upwards, like the call of the green linnet, but very much louder and more intense. The usual cry is as (1). It is louder and more piercing than any other bird-voice in the bush, with a rapid crescendo on the sustained note, and a gradual diminuendo as it slurs deliberately upwards. In quality the note is a whistle, and it burrs shrilly as though the bird had a pea in its larynx. The cry may vary in interval and pitch, and may be followed by other notes, as in (2), the whole of which took about two seconds, the notes vocalized *wheet wheet* being very incisive. Whilst two birds were circling in the air, *wheet wheet wheet* was repeated quickly, four *wheets* a second, many times at intervals.



Soon after daybreak, about 4 o'clock in January, 1911, one called *tiueet* many times, as if to another, slurring from *f* up to *b* flat; and receiving no reply, would call *twiuu,* slurred down from *b* to *f*, very sharply, as if with impatience; then go on with *tiueet* again for a time, then an impatient *twiuu,* and so on. I heard no response. It cries out at all hours of the night as well as the day; more than once I have heard the first call of the season at or after midnight. I have heard no notes from the long-tailed cuckoo that could be called a song, though both Yates and Taylor attributed song to it. "This bird," writes Yates (YN, p. 64) "is one of the sweetest songsters of the wood; but it is only seen or heard for about four months, in the height of summer." This probably refers to the 'wharauroa. He continues, "It secures itself, during the winter months, among stones, or in the holes of the puriri-tree; and does not leave its retreat till all danger of its being overtaken with cold is passed away. The natives say, that always before the wind is about to blow from the south the kohaperoa ceases its song; and does not commence again till the west wind blows, or till a breeze springs up in the north." He knew the shining cuckoo to be a bird of passage, but writes (YN, p. 64) "the natives assure us that it retires in winter into the holes of trees, or into the crevices of the rocks, and does not fly away for winter quarters to other and warmer climates. It only remains here during about three months of the high summer."

Taylor's remarks on it have been inserted under the shining cuckoo; but of the long-tailed one he says further (TI, p. 405): —"Its appearance is a token for the planting of the kumara, and its departure, that it is time to dig them up. Some have an idea that this bird hibernates under the water. The Taupo natives think that it creeps into holes, where it turns into a lizard, and loses its feathers; on the approach of summer, it crawls out of its hole, its feathers then begin to grow, the tail drops off, and it again becomes a bird. In its lizard form, it is called he ngaha, but in Wanganui, he piri rewa, or tree lizard. The natives say, that always before the wind is about to blow from the south, the kohoperoa ceases to sing, and does not commence till the west wind blows, or till a breeze springs up from the north. When a child is deserted by its parents, it is said to be '*Te parahaka o te koikoea*'—'An egg left in another's nest' " [? the reject of the koekoea]. Yates was published twenty years before Taylor. The proverb quoted by Taylor is given in another form by Grey (GK, p. 25) *He potiki na te koekoea,* "The offspring of the long-tailed cuckoo"—as applied to an illegitimate child.

It is curious that the myth of bird-hibernation should spring up in New Zealand soil as in that of the Old World; or perhaps it would be curious were it otherwise; it is one of those touches of nature that make the whole world kin. The myth would appear, however, to have originated among the inland dwellers, if the dwellers in the northern sea-washed peninsula did actually ever see the arrival of birds.

The gathering of the long-tailed cuckoo as if for migration has perhaps been seen. I have been told by an old bush-loving surveyor that on one occasion, when camped on a sharp ridge between Coromandel and Thames, he heard a great twittering; and, attracted by the sound, he investigated its cause. He found large numbers of the cuckoo gathered together; and suspecting, from the time of the year, that the gathering might be for migration, he watched during the night; but they remained that night, and next day, when still more arrived. He said they were in hundreds. He watched next night, too, but must have dozed off, for in the morning all were gone; they must have left between two in the morning and daybreak. Others have seen them in smaller flocks at the supposed time of migration (Tr., Vol. 36, 1904, p. 142).

Of the eight Maori names recorded (WJ, p. 200) the ones more commonly used are koekoea and kohoperoa.

Family : Nestoridae

THE PARROTS

There are two birds of this family in New Zealand :

Nestor meridionalis	the brown parrot	kaka
Nestor notabilis	the mountain parrot	kea

The kaka.—Olive-brown; top of head grey; abdomen and over the tail purplish red; at the back of the neck a ring of yellowish-red; inner webs of the primaries bounded with red; eye dark brown. The sexes are alike. The young may be distinguished by the red feathers on the under-surface of the wing being barred with brown. Total length 18½ in., of which the tail is 7 in.

Eggs.—Four : pure white. Length a little over 1½ in. ; breadth, nearly 1¼ in.

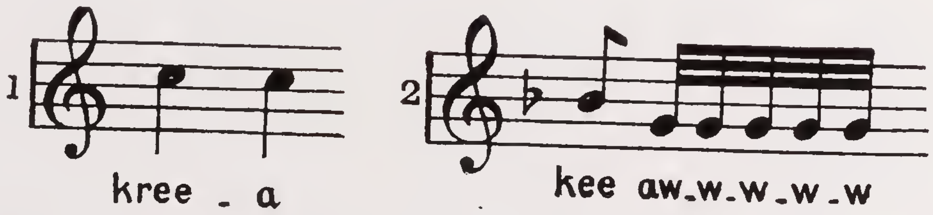
Nest.—Eggs laid on pulverized wood in a hollow tree.

Having been scarcely at all in any locality where the kaka might be observed, I have very little to say on the subject of its calls or song. Moreover, the great majority of those who know the vociferous kaka will deny that such a raucous-voiced bird has any song at all. The words of Guthrie-Smith, (GM, pp. 80-1) the best observer, next to Potts, of the habits of our birds, may, however, be quoted : "........I got a glimpse of another side of the kaka's nature. Twice when she sidled down the totara sapling she crooned very softly to the chicks the most delightful little song, mellow and musical, with the liquid low notes of flute and violin. Before this I had begun to believe her only curious and cold ; but now when I saw her moved, it was impossible to doubt her feelings towards her young. With claws gripping the rough totara bark, leaning forward to the utmost, and peering into the hollow where sat the grey twins, this effortless music was poured over them like a benediction. As I listened, bending to catch the low flow of sound, there seemed to be in it something that man can never fully comprehend—the joy of a creature utterly happy in its hour, with no ache, like man, of sorrow that clouds the past, with no sad foreknowledge, like man, of sorrow to come........ The forest air was delightful; the sun shone warm; that was enough for the bird. Perhaps this kaka's song was of freedom in the wilds, of sun and rain and wind, not consciously known, but felt, and their deliciousness finding a vent, as love, too, does in song, or joy of children in their play. Perhaps it was the song that, as they melt and blend, the sun shines, the water reflects, and the wind spreads everywhere; for light, like water, can wet the leaf till it shines as in a shower; for water can murmur in the tops like wind, and roar through the forests like a leaping sea; for wind can patter in great drops through the breathing greenery, or pour itself like a tide through the swaying boughs.

"The vocal powers of the kaka are by no means sufficiently appreciated. No bird in the woods, I believe, has more tender flute-like notes; nor can I imagine anything more joyous than the clear ringing '*U-wiia, u-wiia*' of the male bird's cry when circling round about his nest............" I often wish I could share with Guthrie-Smith his power of expression;—but then; he knows so well.

"With the earliest streaks of dawn," writes Buller, (BN, Vol. I., pp. 158-60) "and while the underwoods are still wrapped in darkness, the wild cry of this bird breaks upon the ear with strange effect. It is the sound that wakes the weary traveller encamped in the bush; and the announcement of his ever active Maori attendant, '*Kua tangi te kaka,*' is an intimation that it is time to be astir........ When the shades of evening bring a deeper gloom into the depths of the forest, and all sounds are hushed, save the low hoot of the waking morepork, or the occasional *cheep cheep* of the startled robin, the kaka becomes more animated. It may then be heard calling to its fellows in a harsh rasping note, something like the syllables '*t-chrut, t-chrut,*' or indulging in a clear musical whistle with a short refrain........ So long as he does not know he is watched, he may be seen twisting and turning among the sprays, hopping cockatoo fashion along a branch, then climbing higher with graceful agility; resting for a moment to whistle for his mate and, when she has joined him, expressing his pleasure in a sharp chuckling note, like the striking together of two quartz pebbles; then, as if suspecting some treachery below, he suddenly takes wing with loud cries of *ka-ka,* and glides smoothly through the leafy maze........ During the pairing season the two sexes are always together, and when on the wing keep side by side, both calling as they go. In the neighbourhood of their nests they have a low call-note, like *ki-i-to, ki-i-to,* and a very soft whistling cry. Possessing excellent powers of mimicry, and useful to the natives as a decoy bird, the kaka is much sought after, and almost every village has its 'mokai'........''

I saw several kaka when on Kapiti in 1916-17, but they were very quiet. The cry heard was *kree-a,* as in (1), taking a little over a second, or *kee-aw-w-w-w-w* as in (2), the long drawn *aw* being broken as if by momentary stoppages of the breath.



In a secluded valley I saw two kaka sitting on a branch, one a little below the other. The lower bird was seemingly coaxing the other, with a continual *ke ke ke ke,* the four notes repeated, three to a second, at intervals of two or three seconds, leaning up towards it, shivering its body, and spreading its tail at each repetition. This went on for several minutes, when the upper bird, hitherto apparently quite inattentive, seized the lower bird by the upper bill, seemingly, and shook it. The shaking, however, was probably due to the act of regurgitation;—the bird was feeding a young one, which waved its wings slowly and sometimes whined a little during the shaking. The food was evidently passed into the mouth at the end of each quivering. The process was repeated four or five times, the old bird moving away along the branch each time, or flying to a short distance, and sitting apart for a minute or so, the young one remaining the whole time in the one place. Both birds, when separated, scraped the sides of their beaks on the branch, the young one also opening and shutting its beak and working its throat as if swallowing. After a time the parent bird flew off; and the young one seemed to know it was for good, as it shuffled off and was hidden in the foliage. A reading of Guthrie-Smith's book already quoted will shew how seldom the callow young may be seen fed; and I have seen no description of a fledged young one being fed away from the nest. There was no appreciable difference in the size of these two birds.

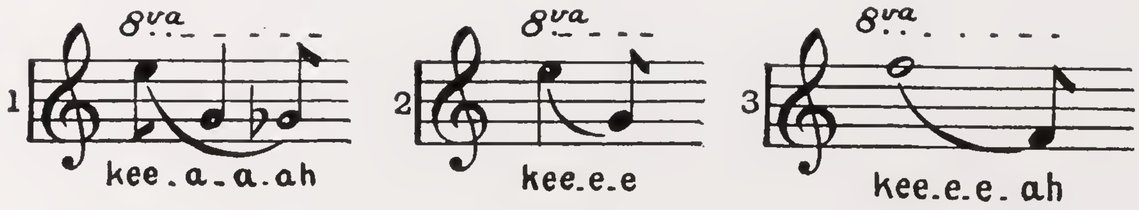
The kaka was a great favourite with the Maori; partly because he was a good bird for the larder, partly on account of his noisy, cheerful hilarity. *He kaka waha nui,* "A noisy mouthed parrot" (GK, p. 15, and later Tr., Vol. 12, 1880, p. 127) was a proverb applied to a silly talkative fellow, or to a boaster; and again, *He kuku ki te kainga, he kaka ki te haere*—"A pigeon at home, a kaka abroad" (Tr., Vol. 12, 1880, p. 129);—a proverb explaining itself when it is known that the pigeon is a silent bird, sitting quietly in the lofty trees, whilst the kaka, ever flying or moving about, is a noisy screamer. One proverb commends his leisurely feeding,—*He kaka kai honihoni,*—"A kaka eats leisurely, bit by bit," (Tr., Vol. 12, 1880, p. 121),—applied to a person who eats moderately and slowly. One proverb refers to the *O* carried by the kaka—the piece of bark, or pebble, mentioned when speaking of the *O* of the cuckoo:—*He O kaka,*—"An O of the kaka" (GK, p. 22), meaning carry no more food with you on your journey than the kaka carries in his claw;—Grey explaining that the Maori said the kaka carries in its claws a small pebble, picked up on the coast, which it constantly nibbles. The kaka apparently had no great sympathy with the morning-concert of the other birds, and often put a stop to it with his harsh shrill note when he thought they had sung long enough (TI, p. 404). Stowell says that the birds, if the concert were drawing near the end, would always stop on the kaka crying out, as much as to say "Have your own way." The Maori has a saying that the kaka never alights on a maire tree (TI, p. 404).

The kaka displays many variations in plumage, yellow, and orange, and almost white, and the Maori has a number of names to describe these variations (WJ, p. 200), but for the ordinary bird kaka is of almost universal use, among both Maori and Europeans.

The kea.—Dull olive-green, each feather edged with black; over the tail and beneath the wings, red; outer webs of the primaries blue, then inner webs banded with yellow; tail, green with a black bar near the tip. Eye, black. The sexes are alike. The young have the dark edgings to the feathers broader.

Eggs.—White. Length, 1¾ in.

This is an extraordinary bird, energetic and entertaining; and he was, for a time at least, protected so that tourists might be gratified by his quaintness,—whilst at the same time the run-holders were exasperated by his destructiveness. The mountain regions are his home; from his cliffy eyries, his crannied fastnesses at the snow-border, and in sight of the magnificent Alpine wildernesses culminating in Mount Cook, the kea, like an old world Hieland riever, issued on his forays, killing and wounding his hundreds. His story has been often told, and much has been written on the strange change of habit in the bird, from a feeder on roots and berries to a devourer of choice morsels from living sheep. He has had a book devoted to him, Marriner's ''The Kea,'' and his vampiric propensities have been dwelt on until many believe that he alights upon the back of the sheep for no other purpose than to eat the kidney-fat of the living animal. But in England, the jackdaw similarly perches on the sheep's back, and the magpie often causes sores on the backs of cattle, in searching for parasites. It is quite possible that were the extents of country as great and as sparsely populated in England as in Canterbury, where the kea was most destructive, the jackdaws and magpies would have become as destructive and as execrated. The bird is beautifully coloured with red under his wings; and those whose concern is sheep consider that when he raises his wings he hoists his Jolly Roger, and they treat him accordingly. On one run near Mount Cook, a tally of losses through the kea was kept for thirteen years, and the average loss was five hundred sheep a year out of a flock of from five to six thousand. Some maintain that he does not attack a vigorous sheep, but either a weakling, or a dead animal; maintain, too, that the rough usage of the shearers is responsible for the death of many sheep for which the kea is blamed. However, the sheep attacked and finally killed has been traced by following the track of wool-fragments torn away by the kea whilst perched on the buttocks of the distracted animal.



The common cry is as in (1). It is a most plaintive one, as though the bird were the injured party. It varies in many ways; at times the slur is from a short note to a longer one, as in (1), at times from a long note to a shorter one, as in (2). The latter cry I heard several times over the moraine of the Tasman Glacier; and whereas (1) is plaintive, (2) is more sinister. The interval, too, constantly varies; it is often much less than shown, and is sometimes so slight that the sound is very like the mewing of a lost kitten. In November, 1910, I heard several kea in the heights of the Malte Brun Range at the terminal face of the Murchison Glacier, crying out before daylight. A most characteristic cry was the one shewn in (3). The first note was very much prolonged, and slurred vigorously down through an octave. More curious was this cry where the long note was uttered with a rapid vibrato, as though it were bubbling through water, and then slurred down a sixth. Again, the pitch and the interval constantly varied.

As will be noted, the quality of the cry, and the vocalization, are somewhat akin to those of the kaka, a bird of the same species; the cry of the kaka is, however, a broader sound; not as shrill as that of the kea.

If, as is almost certain, the name of the kea is, like that of many of the New Zealand birds, echoic, it should be spelt kia, not kea. As it is confined to the Alpine regions of the South Island, being unknown in the North, there is little variation in the name, the only spelling being kea, kia, keha.

The kea is the humorist among New Zealand birds; he seems to spend a great part of his life in play, and makes an affectionate and amusing pet. He will settle on the boot of a seated man, and attempt to draw the nails or pull out the laces; he investigates everything; tests the strength of the tent-canvas, and if it is below standard joyfully tears it to shreds as it deserves; he will enjoy himself dropping stones over a vertical edge, watching their fall; or in glissading, noisily screaming in his enjoyment, down the tin roof of a glacier hut, to the exasperation of those trying to sleep within. If a stone is thrown at him, he watches it and jumps over it; he has more patience in amusing than the watcher in being amused.

Family: Psittacidae

THE PARRAKEETS

New Zealand and its outlying islands possess several species of these gaily-coloured, cheerful birds, of which three may now be found in the main islands:

Cyanoramphus novae-zealandiae	the red-fronted parrakeet	kakariki
Cyanoramphus auriceps	the yellow-fronted parrakeet	kakariki
Cyanoramphus malherbei	the orange-fronted parrakeet	
Cyanoramphus unicolor	the Antipodes Island parrakeet	

The red-fronted parrakeet.—Bright green with blue on the wings; forehead and top of the head crimson; eye crimson. The sexes and the young are alike in plumage, but the female is smaller than the male. The size of the bird is variable. The extreme length is 12 in., of which the tail is 6 in.

Eggs.—Three to seven; pure white. Length, a little over 1 in.; breadth, over $\frac{4}{5}$ in.

Nest.—As a rule the eggs are simply laid on pulverized decayed wood in a hollow dead tree.

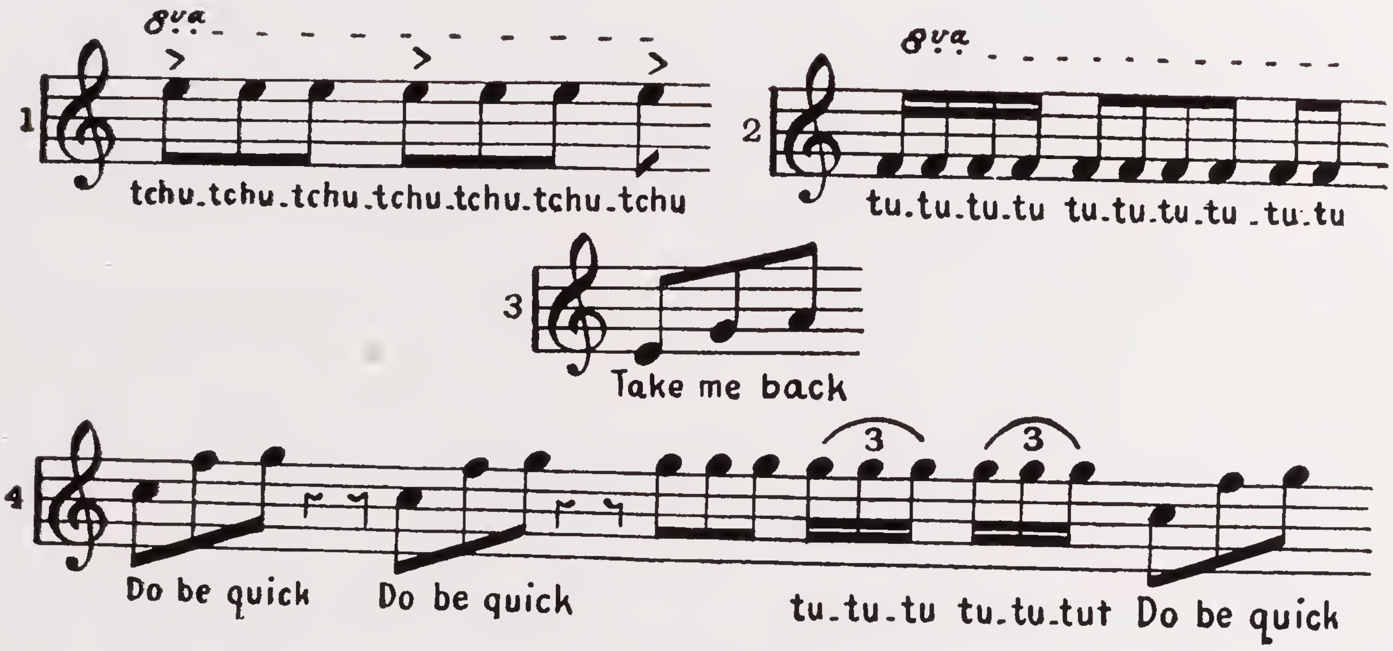
The yellow-fronted parrakeet is the same in colour, except that the forehead only is crimson, the top of the head yellowish-orange.

The orange-fronted parrakeet is the same, except that the forehead is orange, the crown pale yellow.

The Antipodes Island parrakeet is a somewhat larger bird, green in colour, the outer primaries bluish. Eye crimson.

All these birds, excepting the orange-fronted parrakeet, are on Kapiti Island, the Antipodes Island species having been liberated by Dr. L. Cockayne in 1907. I have seen it there, and in the summer of 1924 I saw the yellow-fronted species for the first time. A pair was settled on a spray of manuka, feeding on the ripe cocksfoot, and they allowed us to approach within six feet whilst they sat feeding until they had stripped the heads, we standing by admiring them. For this pleasure I have to thank Mr. Wilkinson, the present caretaker of Kapiti.

I have heard the notes only of the red-fronted parrakeet. The common note, as in (1), uttered both during flight and when sitting in the tree, is a quick chuckling cry, varying in pitch at different times, and sometimes in tempo in the course of the one call, as in (2), the first part being from six to eight semiquavers a second. The note has a broad, reedy sound, and is usually near vocalization. This is especially noticeable in another call, consisting of three notes, as in (3). The notes of (3), vocalized *Take me back,* and *Do be quick,* when higher in pitch, were often heard in the Stony Bay bush, Banks Peninsula, in 1907 and 1912; the vocalization was clearly *Pretty Dick,* when the notes, all *b* flat, were heard at Kapiti in 1916. These vocalizations indicate the reason for the common name, "Pretty Dick," applied to captive parrakeets. They also shew that, the natural vocalizations of the bird-notes being comparatively close to those of human speech, the bird, if in the least imitative, could easily be taught to speak parrot-fashion. The large red-fronted parrakeet was taught more easily than the smaller birds, and was a favourite cage-bird with the early colonists. Even at this day the characteristic note of the cage-bird may be heard in the midst of city life. Buller (BN, Vol. 1, p. 140)


1
8va
tchu.tchu.tchu.tchu.tchu.tchu.tchu
2
8va
tu.tu.tu.tu tu.tu.tu.tu .tu.tu
3
Take me back
4
3
3
Do be quick
Do be quick
tu.tu.tu tu.tu.tut Do be quick

makes something of the fact that "at the Foxton Railway Station there used to be a tame parrakeet that had learned to say 'Be quick!'........" but it learned it from no human teacher, seeing it is one of its common natural calls, which Buller could hardly fail to have heard. He also mentions another vocalization, which I have not heard yet,—"........the parrakeet chased its mate through the tree tops with sharp cries of 'twenty-eight'; ...." (BN, Vol. 1, p. 14). Probably the Australian bird of a similar species, known as the twenty-eight, received its name from its call. In the vocalization *Pretty Dick,* the *d* was sounded as if the bird were slightly tongue-tied. These calls are combined to form a kind of song or recitative, as in (4).

The sounds were very like the commands of some irritable officer drilling a squad of awkward recruits,—*Do be quick; do be quick; Eyes right dress, Tu-tu-tu-tu-tu-tut, Do be quick.*

The approximation of the notes to speech appealed to the Maori, and there is a conversational song or fable invented by them for the kiore (rat) and parrakeet, under the name Pouwhaitere:

Kiore and Pouwhaitere.

Pou. E kiore, ka piki taua ki runga.
Ki. Kei te aha taua i runga?
Pou. Ki te kai pua rakau.
Ki. E aha te pua rakau?
Pou. He miro, he kahikatea.
Ki. E tama ra e—ko te whaka-
ruarua i a taua; e
tama ra—e—e haere mai
nei te tangata, e ronarona
nei i te kaki, torete te
wai au, ti mau rawa.

Rat and Parrakeet.

Par. O rat! let us climb up above.
Rat What shall we do up there?
Par. Eat the fruits of the trees.
Rat What kind of fruits?
Par. That of the miro and kahikatea.
Rat My friend, both our tribes
are diminishing; man comes and twists
your neck, *torete te wai* (the
imitation of a bird's cry of pain)
and as for me, I shall be caught in
his snare.
Moral: No escape from the power of man.

There is also a duet between a kakariki and a kaka—the little green parrot and the brown parrot. (GK, p. 74).

Na te kakariki, tenei tangi.

E te kaka! e rere atu rara homai aku kura,
Naku ano aku kura i tiki ki te motu tapu na Tinirau.
Torete, kaureke; torete, kaureke.
E te kaka, e rere atu rara,
"E rere ana koe ki hea?
"E rere ana ki Poutahi?
"E rere ana ki Puke-whanake?
"Ki te kawe korero ki a Te Iripa?"
Kahore hoki au e aha atu nei ki a koe;
Ka tu au i te rahui whakaioio, na Toko-ahu;
Tenei au kei te ruhi noa, kei te ngenge noa,
Ta te raumati hanga.
Torete, kaureke; torete, kaureke.

The Cry of the Little Green Parrot.

G.P. O, thou big brown parrot, flying away there!
Give me back here my own red feathers!

B.P. My feathers are my own indeed;
I fetched them from the sacred isle,
Tinirau gave them to me.

G.P. *Torete, kaureke; torete, kaureke.*
O, thou big brown parrot, still flying away there!
Tell me whither art thou flying?
Art thou flying away to Poutahi?
Art thou flying to Puke-whanake?
To carry tidings away to Te Iripa?

B.P. Verily I will not reply to thee.

G.P. Here am I standing in the preserve,
Causing aching legs, made by Toko-ahu!
Here am I both listless and tired out. Alas!
The weary doings of the hot summer days!
Torete, kaureke; torete, kaureke!

Torete, etc., is the common cry of the parrakeet, according to the southern Maori of the North Island (especially when engaged in quietly talking to itself, as in confinement). It is probably a taunting-song by a captive bird;—it taunts the kaka that it, too, may soon be a prisoner tied by the leg to a post. The names are figurative. "The whole," writes Colenso, who gives the above translation, "especially when sung to its own proper tune, is very facetious, especially to a Maori.'' (Tr., Vol. 13, 1881, p. 72).

The bird has given rise to a proverb, *He kakariki kai ata*—''The parrakeet eats very early in the morning''—applied to a greedy fellow, who begins to eat directly he awakes, instead of going to his work. The Maori was accustomed to getting several hours' work done before breakfast until he was taught better.

Of the ten Maori names collected (WJ, p. 200), the name commonly used is kakariki. This is also the name of the colour green, and some suppose the name to have been given on account of the predominant colour of the bird. The name may, however, be echoic; the notes certainly have often a similarity to the sound *kakariki.* It is perhaps less likely that this form is derived from kaka, the brown parrot,—kakariki meaning the little kaka (*riki* or *iti* = small), though there is also the form kakapo, the night-kaka, applied to the green parrot.

Evidence of the echoic nature of the Maori names is given in the name by which the bird is known to some of the modern young Europeanized Maori. They call it the footballer, partly because of its green jersey, but more particularly because of its constant cry *''Free kick!—free kick!''*—a cry which may often be heard instead of *''Be quick''!* or *''Pretty Dick.''* The ever-ready abounding humour of the Maori appears in this name.

The green of the plumage is a most beautiful colour, especially when seen in sunlight. One summer day as I lay in Te rere, a craggy valley in Kapiti, a parrakeet alit on a sunlit branch a few feet distant immediately before and above me; he paid no attention to my presence, but after preening his feathers, and chuckling as if over some pleasant recollection, he extended first one wing, then the other, holding them pointed slantingly downwards in the hot sunshine. The colour seemed almost living, so luminous was it,—like his bright eyes as he looked about the tree and fern-fresh rocky valley where we sat, no sound disturbing the serenity save the singing of broken waters, the murmur of the sea below, and occasional bird-calls borne from the green recesses of the steeply-rising spurs.

Family: Falconidae

Ninox novae-zealandiae morepork ruru

Above, brown, spotted with fulvous; below, fulvous streaked with brown; feathers on the legs, rufous. Eye, bright yellow.

Egg.—White. Length, $1\frac{1}{2}$ in.

New Zealand possessed two species of owl; the morepork, or ruru, and the laughing owl, or whekau. The latter was much less known, and much less common than the former. It lived in rocky hill-sides, and in the mountainous districts, usually away from bush; and its cry was, says Potts, ''made up of a series of dismal shrieks frequently repeated........; if its cry resembles laughter at all, it is the uncontrollable outburst, the convulsive shout of insanity; we have never been able to trace the faintest approach to mirthful sound in the unearthly yells of this once mysterious night bird,—mysterious, because for years unsuccessful attempts had been made to secure a specimen of this dismal visitor, whose fitful presence at eventide was scarcely observed before its form was lost to view in the deepening gloom of approaching night.'' (PO, p. 122). The cry was more often heard in misty weather, and before rain, in which latter respect, the bird served as a weather-prophet in common with the weka, ruru, and tui. The bird is now almost extinct.

The ruru is arboreal in his habits; and in any locality where clumps of Maori bush still remain, his mournful cry comes with the quiet dusk. He has been given the name morepork on account of his cry, the notes sometimes approaching the sound of those words. As regards the Australian podargus of the same name, the following lines are of interest:

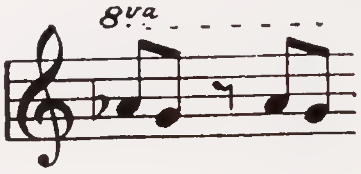
''Father! I hear the bittern boom,
And the mope-hawk's doleful cry.'' (MS, p. 89).

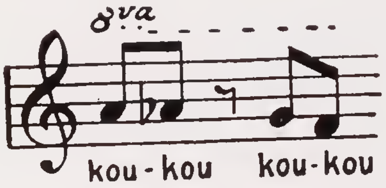
The name is often spelt mope-poke; and whilst ''mope-hawk'' may be no more than a corruption, it is a most intelligent one, seeing that mope means purblind or short-sighted. The podargus

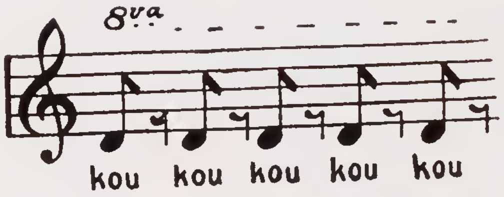
[*Wells, photo*

Stream from the glow-worm dell, Botanical Gardens, Wellington.

referred to is a nightjar, and the British nightjar is also known as the dor-hawk, *dor* being a dor-beetle or cock-chafer, and the name referred to the fact that the bird hawks in the dusk for these beetles. Dor-hawk, again, is very like more-pork in sound, but the former name was not given from the cry of the bird. This shews how similar names may have very different origins. The usual cry consists of two notes, repeated twice or more at intervals, as in (1) and (2), and whilst the words *more-pork* may often be distinctly fancied, the vocalization is as often *kou-kou.* The four notes are uttered in about a second, and

1


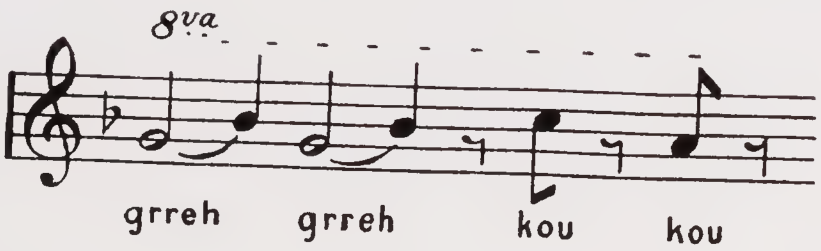
2


3


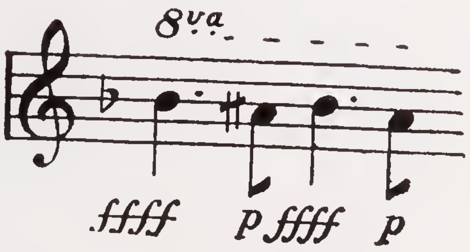
repeated at intervals of five seconds or so. The sounds *kou kou* are also heard in a series of notes that often precede the usual call, as in (3). The sound is frequently muffled, or half choked, as one might imagine the cry of the hokio, the ominous bird of battle referred to in the proverb,—*Hokio rere po, pekapeka rere ahiahi* (GK, p. 32), "The hokio flies in the night, the bat flies in the twilight"; meaning, "Do you think I will go in the dark?" The cry apparently resembles that of the British Scops-eared owl, of which Yarrell (YH, Vol. 1, p. 129) writes: "It does not merely 'to the moon complain' occasionally, but keeps repeating its plaintive and monotonous cry of '*kew, kew,*'........in the regular intervals of about two seconds, the livelong night;........" The *kou kou* is at times *kau kau* (*caw caw*), and in a vibration such as would be caused by vibrating the uvula whilst imitating the sound, making the vocalization *krrau krrau* or *krrou krrou*; and, as noted earlier, it is evident that this sound was heard by the Maori. Writing of the time when he first came to Nelson, 1843, Wohlers remarks,—"Only now and then an owl in the wood called out 'Morepork' in English—but it is not likely the owls here have already learnt English." He continues, with truth, "The voice calls out exactly 'Koo-koo' (the Maori name of this owl); each vowel, although flowing together, is distinctly heard. It is not to be wondered at that the settlers who had got hungry working in the wilderness, understood it as 'Morepork.' " (WM, p. 72).

The common cry is at other times preceded by a vigorous upward slurred cry vocalized *grreh,* the *r* having the continental sound, as in the *krrou;* this slurred cry is shewn in (4). From its nature, one would suppose it to be a cry intended to startle its prey into revealing their presence. The cry is certainly sufficiently startling when heard close at hand, coming from a noiseless but quickly moving shadow,—a shadow that more often than not cannot be seen at all.

4



5



A less usual cry is the one shewn in (5). It is like an indrawn whistle, very high in pitch, the passage of the air between the teeth making the *ffff sound,* and the closing of the lips the *p.* Two birds coasted the edge of the bush uttering this cry at intervals of from two or three seconds to half a minute. Another hurried chuckling cry may be heard at times. It sounds as though the bird is congratulating itself on having secured a prize; and I am told that this is the cry the Maori took as a prognostic of rain.

The ruru is said to have been known to warn a village of the approach of an enemy, by crying *koukou! whero! whero! whero!* If the village were unfortified, the people would, on hearing this cry, desert it and take to the bush for the night.

His exploits in the great battle of the birds have been related in connection with the fantail; and it may be noted that that legend makes him one of the first winged inhabitants of New Zealand.

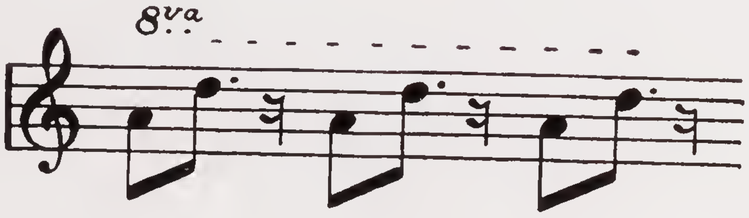
Of the six Maori names collected (WJ, p. 201) the ones more commonly used are ruru and koukou, ruru being much the more common.

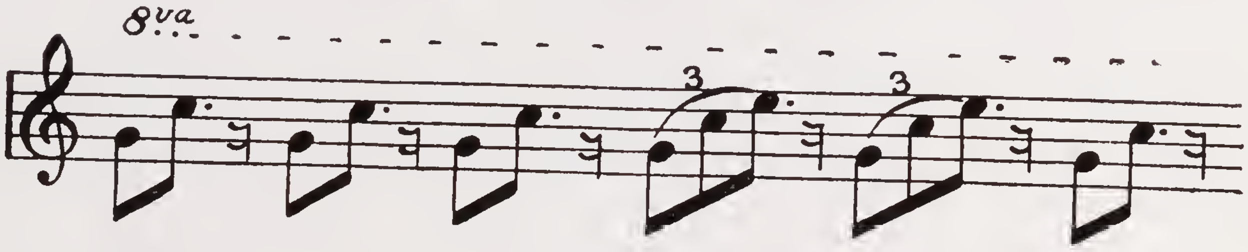
Family: Rallidae

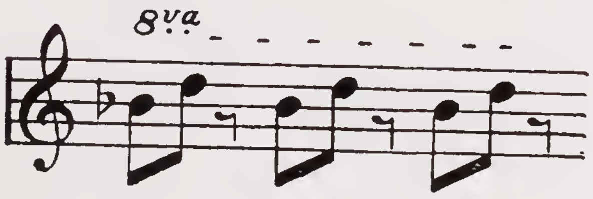
Ocydromus the woodhen, or Maori hen weka

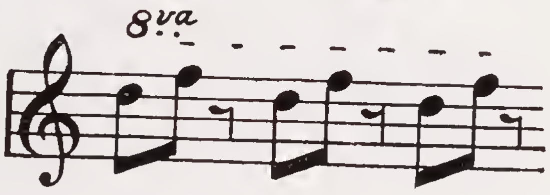
This fearless, inquisitive, thieving, pugnacious, and entertaining bird was at one time extremely common in all parts of the islands, open lands and bush-lands alike; and in many parts it is still common, being glad enough of the companionship of man, if only he would display similar feelings of friendliness;—but he has branded the bird a vagabond and a marauder. Its wings are too short to be of use for anything but running and fighting, and it is able to do both well. On casual acquaintance, its bad qualities seem to outnumber and overshadow its good ones; but further acquaintance will modify the first conclusion, if it does not reverse it. The cry has no great variety, and the pitch is very constant. The call of the two sexes differ in pitch, the note of the female being the higher and shriller. The common call is as in (1), and the opening note is usually *g* or *a*. I have heard the variation shewn in (2), but not often. As I sat in the bush one day I heard a weka call as in (3), and on one replying as in (4), the first continued as in (5), the two birds approaching each other. As the male neared the female, he commenced the peculiar drumming sound as in (6), the notes being uttered slowly at first, more quickly when the birds were together. The sound is like that produced by knocking the end of an empty cask, or by the escaping air bubbles when a big bottle is being filled held under water. The birds, hidden during the calling, came into view, and on seeing me walked off with deliberate steps, one behind the other, heads and tails down, as if conscious of having been guilty of some misdemeanour.

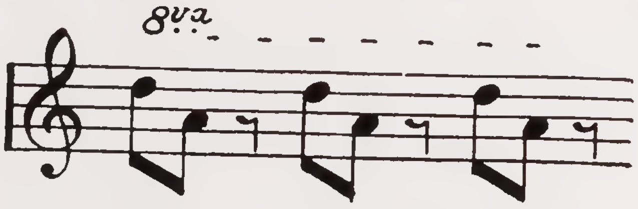
On Kapiti a pair had their particular run close by the cottage, and on the male calling as in (7), the female invariably replied at once in (8), her reply often sounding immediately after the first or second note of the male. When calling, he stood erect with bill and neck stretched upwards, the bill open as the cry pulsed up through the pipe. The deep *mmb* of the male often sounded at the same time as the call. The continuous call of (9) is possibly a danger signal; the bird who uttered the call seemed to be running off from something that had disturbed him.

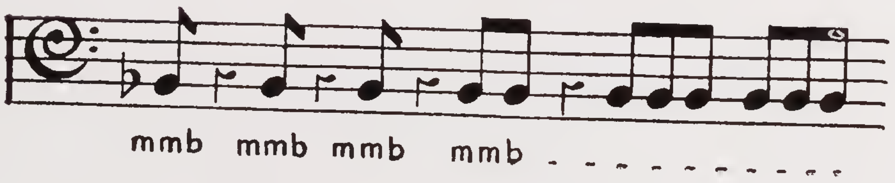
1


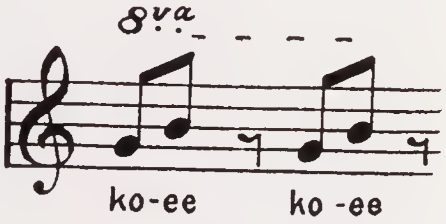
2


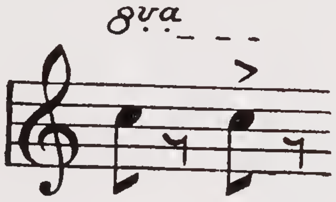
3


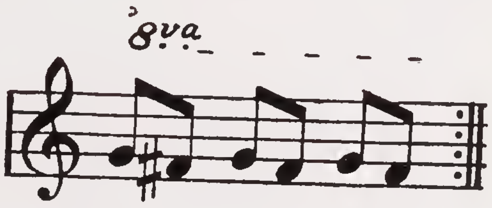
4


5


6


7


8


9


In a Maori account of the attacking of a pa in one of the bays on Banks Peninsula, a scout climbed the wooded hill overlooking the pa:—"if you hear my voice sounding from high up the hill," said he, "then you will know that the pa is guarded; if my voice sounds low down, the pa is not guarded ....Whakakuku did not keep them long in suspense, for he soon succeeded in reaching a position overlooking the pa, where he at once commenced to imitate the cry of the wood-hen, *ko-ee, ko-ee, ko-ee.* The women of the pa listened, and said one to another, "Hark! what bird is that? Surely it is a female weka that is crying in the wood above us." He then climbed to a point still higher above the pa, where he commenced to cry *tee-wake, tee-wake, tee-wake.* The women said again, "Hark! Surely that is the cry of a male weka."........His companions, on hearing his signals, interpreted them to mean that although there were many women in the pa they were not altogether unprotected........" I have heard no calls to correspond to the second of these signals, and the first is the vocalization of the call of the male bird at Kapiti.

There is a proverb *E hia motunga o te weka i te mahanga* (GK, p. 18), "How often does the weka break loose from the snare?"—meaning "Ah, you'll be caught at last," and another (Tr. Vol. 12, 1880, p. 120), *Ka hoki ranei te weka i motu ki te mahanga?* "Will the escaped weka indeed return to the snare?"—meaning once bit twice shy.

Family: Anatidae

Casarca variegata the paradise duck putangitangi

The paradise duck, which is really a species of goose, is common in the mountainous districts of the South Island. I have seen this bird on the waters of the Blue Lake, a lagoon lying between the lateral moraine of the Tasman Glacier and the precipitous slopes of the Mount Cook Range. The lagoon was partly bordered with Alpine shrubs, partly open, with banks of tussocks and Mount Cook lilies. It was fed by a brawling glacial stream; and on a sunny day, with a light mountain breeze swaying and ruffling the tall, graceful lilies, the environment seemed a perfect setting for the beautifully plumaged birds, the drake with black head, neck, and breast, back black with graceful pencillings of white, and abdomen brownish with black pencillings, and the duck with white head and neck, and brownish body. It is always in pairs, and when seen on the Blue Lake one might suppose the bird to have been named from the beauty of the locality as much as from the beauty of its plumage.*

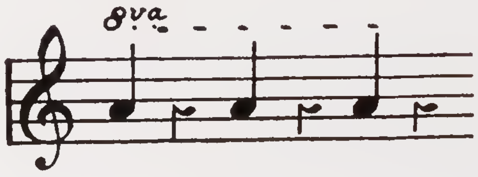
The cry of the duck is quite different from that of the drake, varying in pitch, sequence, and tempo as in (1) to (4). The note has almost the quality of a clear human cry, more especially as regards (3). It is uttered both when the bird is at rest on the ground and when on the wing. The cry of the drake is as (5) to (7). The sound may be very nearly reproduced with a piece of paper and a comb. The quality of all was alike, but in (5) there was an overtone distinctly audible;

---

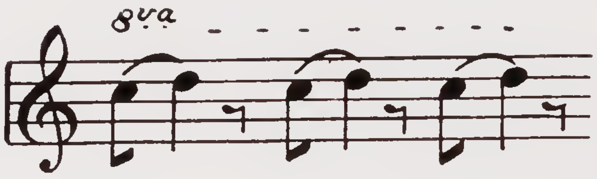
*The above is written in the past tense, for the Blue Lake has since passed out of existence. There are many changes in these wild mountain-regions, some gradual, some sudden; the Blue Lake has been admired for over half a century; it may reappear, beautiful as ever; it may be lost for all time, like the pink and white terraces of the thermal regions.

and this overtone very much softer and fainter than the deeper note, had a sound more allied to the cry of the duck. Very often during flight the drake will sound his deep notes of (5), whilst the duck cries the plaintive notes of (3); and the

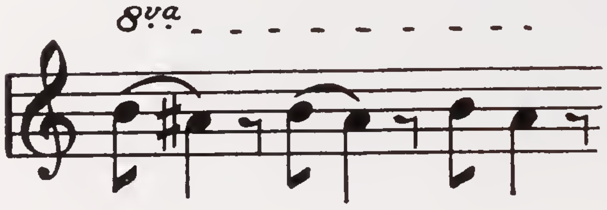
1



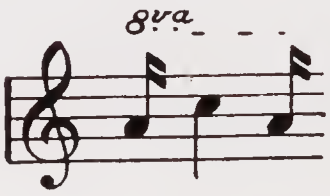
2



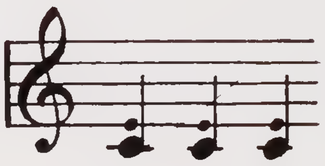
3



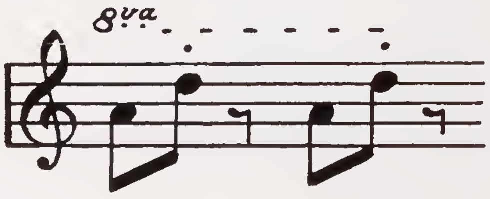
4



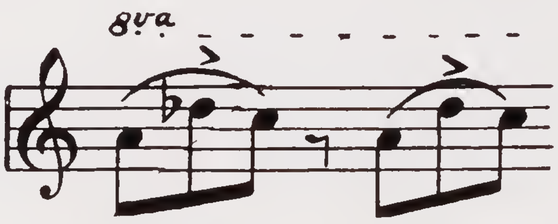
5



6



7

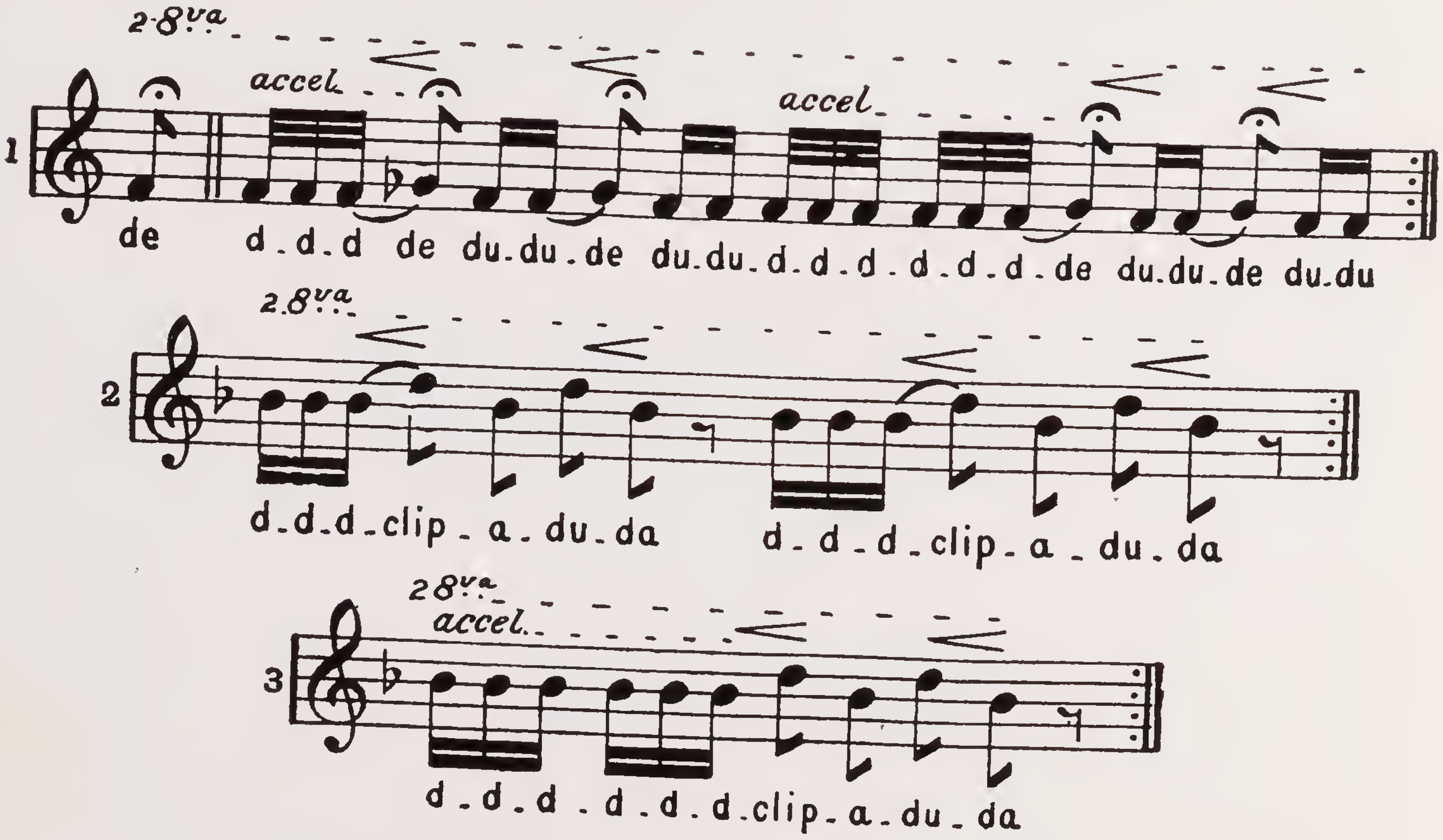


effect is then as though the duck were lamenting a lost brood or desolated home, whilst the drake was doing his utmost to comfort her. If, as is said, the native name putangitangi was given on account of the cry, then the notes of (3) were certainly the ones whose plaintiveness touched the poetical nature of the Maori.

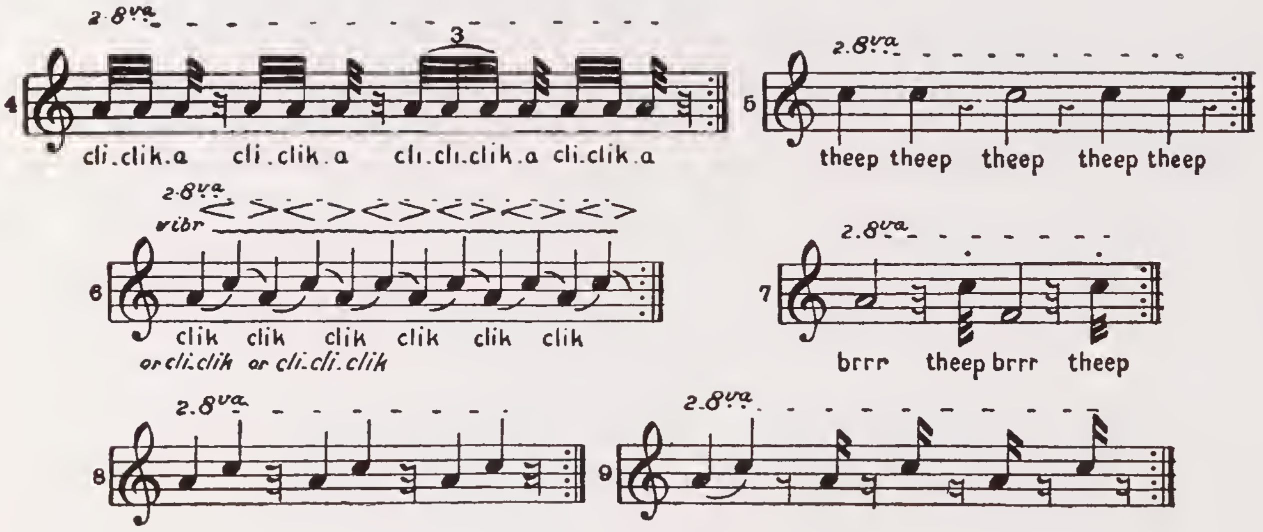
The Cicada

Melampsalta cingulata the cicada tarakihi

As the warmth of December intensifies to the heat of January and February, the air becomes vibrant and alive with the song of the tarakihi, rejoicing in the cloudless sunshine of the long days. This, to the Maori, is the sweetest singer of the New Zealand song-birds; it is their best beloved, and they call it "the bird of Rehua,"—Rehua being the lord of kindness and plenty. This bird Europeans call a cicada, nor do they regard its shrill stridulation as song; and whilst it varies little in tone, it has an extraordinary rhythm, of considerable variation.


2·8va
accel.
accel.
1
de d.d.d de du.du.de du.du.d.d.d.d.d.d.de du.du.de du.du
2·8va
2
d.d.d.clip.a.du.da d.d.d.clip.a.du.da
2·8va
accel.
3
d.d.d.d.d.d.clip.a.du.da

The themes of (1) to (3) were noted on Kapiti. The "*d*" of the vocalization may at times be "*t*"; the vowels are short as in "*net,*" "*tut,*" and in the faster triplets the vowel seems to be dropped, causing a sharper attack on each note, and it is this sharp attack that causes the penetrating chirr. There may be one, two, or more triplets, and whenever these are chirred there is a gain of speed, the original tempo being resumed after the slur. The crescendo on the slur up to *g* and *d* commences on the last note of the triplet, and the slur itself seems to be vibrato. The tempo is at the speed of about five quavers a second. The song is usually interspersed with sharp *clicks* or *clips,* as shewn in (2) and (3); these variations are very loud and shrill, and on a hot day, with scores of performers chirring and clicking away the sound almost becomes oppressive. There is, however, a deep interest, that quite overcomes the oppressiveness, in picking out the songs of individual performers, when an astonishing amount of variation is revealed. The clicks are caused by a snicking or snapping of the wings, as may readily be seen if the cicadas are watched.


2.8va
4
cli.clik.a cli.clik.a cli.cli.clik.a cli.clik.a
5
theep theep theep theep theep
vibr
6
clik clik clik clik clik clik
or cli.clik or cli.cli.clik
7
brrr theep brrr theep
8
9

The above were noted in January; and in February, (4) to (9) were noted in Wellington. In one song, (4), the *click* had become predominant instead of

Tarakihi:

an echoic song of the tarakihi:

Rangi-ō, rangi-ō,
tairoa, te rangi
katu, taki, taki

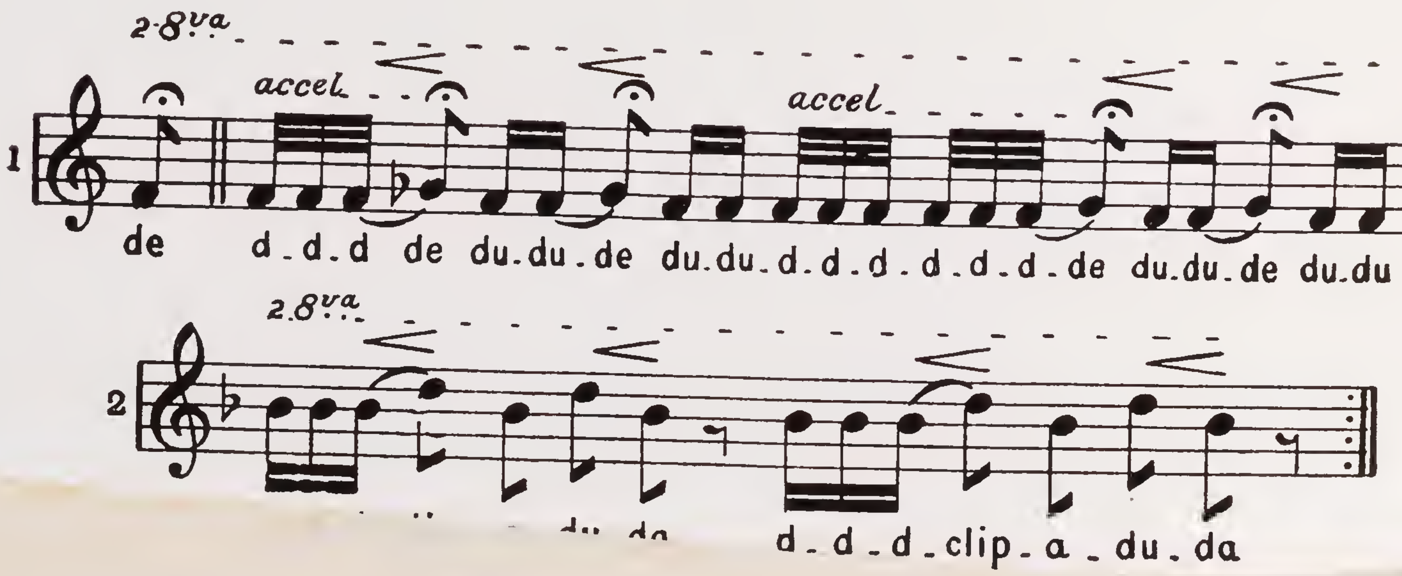
and this was a prophecy of the world war coming (the one now in progress, 1945)

Jimmy Moka
28.1.1940

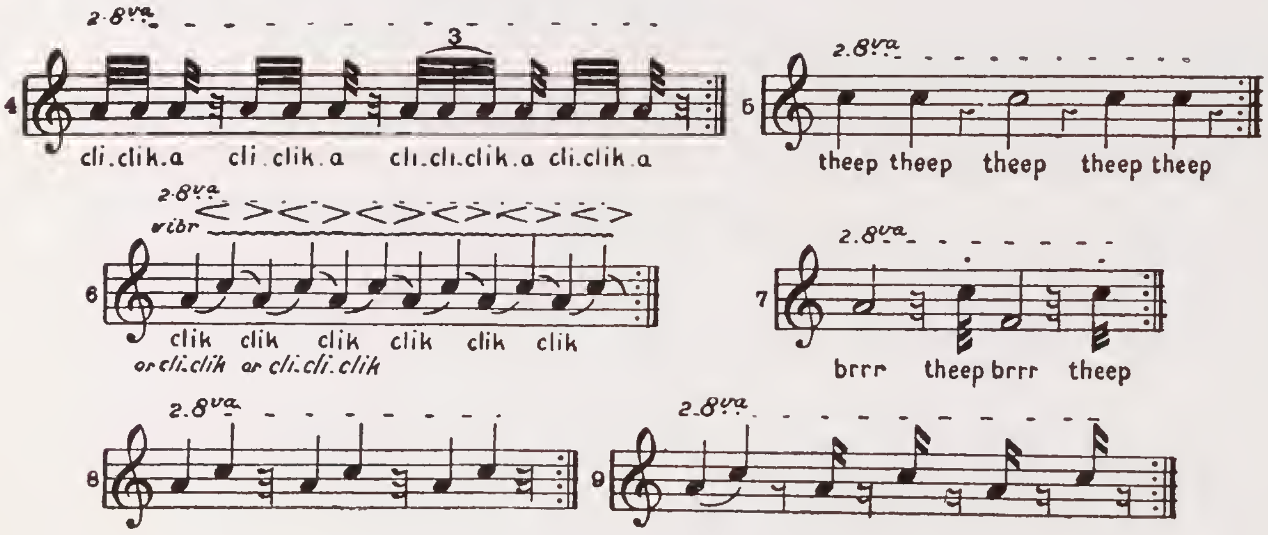
The Cicada

Melampsalta cingulata the cicada tarakihi

As the warmth of December intensifies to the heat of January and February, the air becomes vibrant and alive with the song of the tarakihi, rejoicing in the cloudless sunshine of the long days. This, to the Maori, is the sweetest singer of the New Zealand song-birds; it is their best beloved, and they call it "the bird of Rehua,"—Rehua being the lord of kindness and plenty. This bird Europeans call a cicada, nor do they regard its shrill stridulation as song; and whilst it varies little in tone, it has an extraordinary rhythm, of considerable variation.

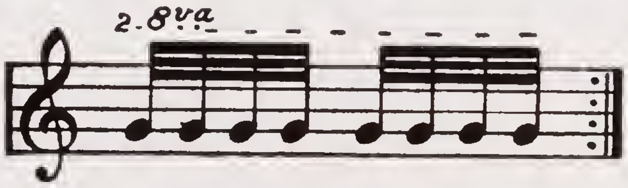


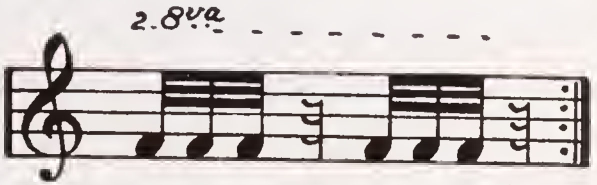
slur. The crescendo on the slur up to *g* and *d* commences on the last note of the triplet, and the slur itself seems to be vibrato. The tempo is at the speed of about five quavers a second. The song is usually interspersed with sharp *clicks* or *clips*, as shewn in (2) and (3); these variations are very loud and shrill, and on a hot day, with scores of performers chirring and clicking away the sound almost becomes oppressive. There is, however, a deep interest, that quite overcomes the oppressiveness, in picking out the songs of individual performers, when an astonishing amount of variation is revealed. The clicks are caused by a snicking or snapping of the wings, as may readily be seen if the cicadas are watched.

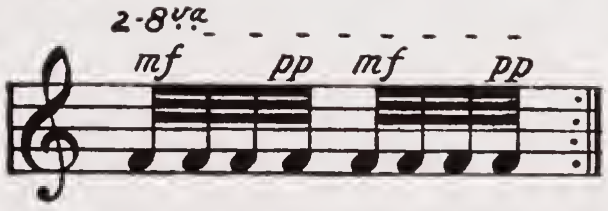

2·8va
3
4
cli.clik.a cli.clik.a cli.cli.clik.a cli.clik.a
2.8va
5
theep theep theep theep theep
2·8va
vibr
6
clik clik clik clik clik clik
or cli.clik or cli.cli.clik
2.8va
7
brrr theep brrr theep
2.8va
8
2.8va
9

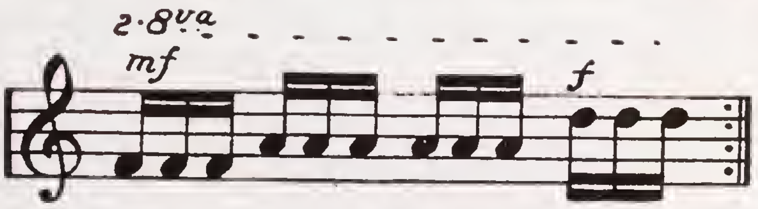
The above were noted in January; and in February, (4) to (9) were noted in Wellington. In one song, (4), the *click* had become predominant instead of subordinate; there were from ten to twelve *clicks* in a second. In another (5), there was a long drawn *theep* on one note, about two crotchets in a second, the *theeps* broken by occasional pauses. In another, (6), there was a constant throbbing slur from *a* to *e* and down again, the whole being a vibrato, very penetrating, of from 15 to 20 beats a second, with a single, double, or triple *click* at the bottom of each wave of sound. This went on and on without intermission, no rest or break dividing the song; it was sung at a speed of about two crotchets in a second. In another, (7), there was a *burr* on the *a*, lasting two seconds, a pause, a sharp *theep* on *c*, and an immediate drop to a burred *a*, and so on. Another, (8), chirred from *a* to *c*, a pause, and sharp to *a* again. This was quite dissimilar to (6), there being no wax and wane of sound, no *click*, and no down slur. It was varied as in (9), where after the first slur the two notes were separated by a pause. The whole of these performers, and many others besides were chirring and burring and clicking and theeping together, forming, until attended to closely, a seemingly inextricably confused throbbing body of sound.

Two or three autumnal days in the latter half of February of this year, 1917, almost silenced the cheerful cicadas, but sunny weather following, they sang again in great numbers; I counted twelve, all close together on the stem of one lily-palm (*Cordyline*). Among other songs, heard on 13th March, sounded one as in (10), a quick continuous chirr, quite even in sound, like the rapid turning of a small wheel. It was varied at times by being broken as in (11), when the fourth note was dropped, and the variation was connected with (10) as in (12), where the fourth note was sounded very lightly. On 8th March (13) was heard at dusk, about ten semi-quavers a second.

10


11


12


13


At least about four species of cicada and cricket may be distinguished by their song:—the common cicada, songs (4) to (9); the small ground-cricket, pihireinga, songs (10) to (13), whose faint wheel-turning song may be heard on most warm days of the year; an imported cricket, whose song I have heard in Nelson, but lost the record; and one I heard in Gisborne, taking it for a hedge-sparrow until I heard its song continuing throughout the night. *Me te tarakihi e papa ana i te waru,* says the proverb, (TI, p. 134), "Like cicada chirping in the eighth month,"—a saying that when there is much food there is also much talking.

The striking rhythm of the tarakihi song has been adopted by the Maori in a fine and extremely popular posture-song and dance.

E whakarongo ai au,
Ki te tangi mai,
A te manu nei,
A te tarakihi
I te weheruatanga o te po:

Chorus:

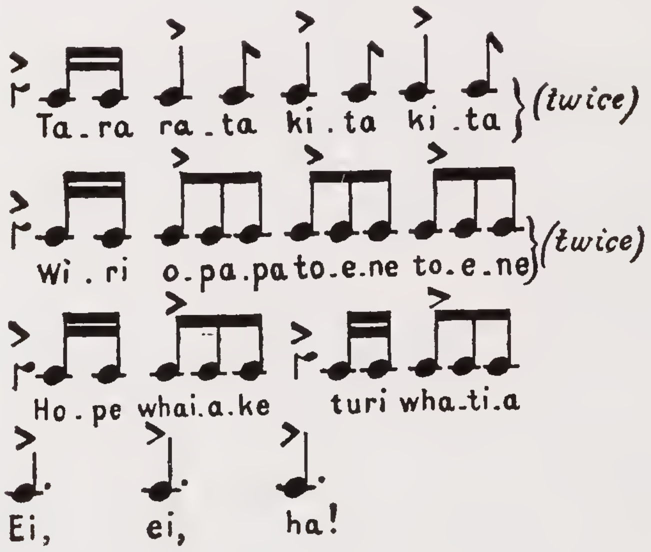
Ta ra ra-ta, ki-ta, ki-ta,
Ta ra ra-ta, ki-ta, ki-ta,
  Wiri o papa, toene, toene,
  Wiri o papa, toene, toene,
  Hope whai a ke
  Turi whatia,
    Ei, ei, ha!

Oh, my fancy listening
To the song of songs,
Of this singing bird,
Of the tarakihi
In my dreams in the midst of the night,—

Chorus—

Ta ra ra-ta, ki-ta, ki-ta,
Ta ra ra-ta, ki-ta, ki-ta,
  O quivering sides, sound the refrain,
  O quivering sides, sound the refrain,
  And with waist supple,
  And bended knees,
    Ei, ei, ha!

This is the song that came to the Maori poet, wandering on a summer afternoon in search of inspiration. Approaching a grove of mahoe trees in a sequestered and romantic nook, he suddenly heard the delirious joy-song of the assembled tarakihi throbbing on the air. The rhythm is represented in the following:—



This rhythm is somewhat similar to the recorded song (2) above, and the introductory stanza is in a similar rhythm, with the dropped opening accented beat. The lyric at once seized on the popular imagination, and it was soon converted into a haka, or posture-song and dance, with the following introduction:—

E pakia kia rite,
O slap-slap in unison,

On the word *pakia,* the thighs are slapped with both open hands, and again on the word *kia*;

E p$\overset{>}{\text{a}}$-ki-a k$\overset{>}{\text{i}}$a ritë,

so keeping time whilst the leader gives out the next line:

E ko te ritë, kia ritë,
O evenly, evenly,

where the thigh-slaps are on the words ko and kia

E k$\overset{>}{\text{o}}$ te ritë, k$\overset{>}{\text{i}}$a ritë,

and are continued rhythmically through the next line:

E takahia kia ngawari,
O stamp the feet regularly,

Following the thigh-slap on the word *ngawari,* the right feet are extended and brought down with a stamp in unison with the corresponding thigh-slap. The stamp and slap together then continue through the next line:

E torona kei waho hoki mai,
O stretch well forth and draw back again,

Here, following the stamp and the thigh-slap on the word *hoki,* all arms are stretched well forward, and brought back until the fingers of the inturned hands just tip the shoulders exactly in time with the foot-beats.

These actions are continued through the delivery of the opening verse:

E whakarongo ai au,

On the word *Ta*, the first of the chorus of the cicada, the hands are slapped together, probably as representing the clicking accompaniment of the chirring song, and so on according to arrangement.

It may be noted that the song is subject to a double interpretation; the one in accordance with the above rendering by Henry Stowell (Hare Hongi), the other on the theme of Carew's "First Rapture." Even to a European, especially one to whom the song of the cicada is known, this *haka* makes an instant appeal; the syncopated rhythm is so unusual, yet so definite; and it is easy to appreciate the genius of the Maori composer.

INDEX

Acclimatization of English Birds, 45
Aesthetic sense of birds, 2, 14, 155
Albatross, in battle of the birds, 27
Albinism in New Zealand birds, 22, 64
Albino, the offspring of a fairy, 64
Anderson, Dr. R., bell-bird called mocking-bird, 161
Anthornis melanocephala, 161
Anthornis melanura, 142
Anthus novae-zealandiae, 81
Anthus steindachneri, 83
Antipodes-lark, 83
Arne, T. A., notes of cuckoo, 173
Art in bird-song, 14-15 ; fantail, 23, 24 ; hedge-sparrow, 47 ; grey warbler, 54, 56-57 ; brown creeper, 78-80 ; tui duet, and tui and bell-bird, 131 ; morning chorus of tui and bell-bird, 133-135 ; bell-bird, 157-158 ; theme with variations, 158

Bechstein, J. M., song of nightingale, 10-11 ; of titmouse, 68 ; of woodlark, 85 ; of crested lark, 86 ; of finches, 90 ; of starling, 93
Beethoven, L., notes of nightingale, quail, and cuckoo, 173
Bell-bird, 106, 142 ; aesthetic taste, 146 : notes recorded by Shortland, 149 ; most of recorded songs are females, 151 ; whisper songs, 157-8 ; theme with variations, 158 ; song of male, 159 ; corruption of name to mockie, 160
Best, E., battle of the birds, 25-27 ; song of greeting to shining cuckoo, 177
Bird sanctuaries, 97-98
Blackbird, emulation in song, 12 ; in New Zealand, 33 ; change in habits, 34-35 ; study of its song, 44
Blackcap, French form of name, 110
Blight-bird, 106 ; double nest, 107 ; its first appearance, 107
Blue Lake, Mount Cook, 202
Bolton, J., song of caged birds, 9 ; emulation in song, 12 ; mimicry in song, 13 ; first description and illustration of tui, 113 ; morning chorus of tui, 116
Brown creeper, 78
Browning, R., reference to cuckoo, 173
Buckland, J., godwit migration, 165
Buller, W., song of New Zealand thrush, 43-44 ; rarity of white-head, 69-70 ; song of pipit, 82 ; hunting huia, 96 ; considers blight-bird indigenous, 107 ; rarity of stitch-bird, 141 ; cuckoo migration, 165 ; character of kaka, 185-186 ; vocalization of parakeet notes, 192-193
Bunting, cirl, 89
Bush-canary, 77

Caged birds, period of song, 9
Canary, bush, 77
Casarca variegata, 202
Certhiparus albicapillus, 69
Chaffinch a favourite, 90 ; acclimatized, 90
Chalcococcyx lucidus, 164
Chance, E., cuckoo and her egg-laying, 169
Chatham Island bell-bird, 106
Chord in music, composition of, 5
Chromatic run, by thrush, 33
Cicada, 204 ; female not apparently attracted by song, 12
Cirl bunting, 89
Clarinet, quality of sound, 4
Colenso, W., battle of the birds, 27-28 ; cuckoo migration, 164
Collectors, inveteracy of, 69-70, 96, 141, 142, 147
Collier, J., spelling of kea, 112
Cook, Captain J., made tui known, 113 ; described morning chorus, 116
Cormorant, in battle of the birds, 25-26

Cornish, C. J., best song-period, 10
Creadion carunculatus, 98
Creeper, brown, 78
Crow, New Zealand, 101 ; found by Turi, 104
Cuckoo, bronze-winged, *see* Cuckoo, shining
Cuckoo, English, interval of notes, 1 ; forms of the name, 110 ; difference in eggs, 168 ; method in laying of eggs and habits, 169-171 ; notes given by musicians, 173
Cuckoo, long-tailed, 179 ; movements of, 180 ; birds victimized, 180 ; a possible gathering for migration, 183
Cuckoo, shining, 164 ; chased by fantail, 25 ; in battle of the birds, 26 ; in story of Hau-tupatu, 59 ; migration of, 164 ; known to winter in New Zealand, 172 ; perhaps not migratory, 171-172 ; known as the bird of Hawaiki, 178 ; carries a pebble to lick, 178
Cyanoramphus sp., 191
Cymbals, quality of sound, 4

Darwin, C., useful instincts pleasurable, 10 ; bird-migration, 11
Dieffenbach, E., call of huia, 95
Differences in birds of North and South Islands of New Zealand, 70-71
Double eggs, see eggs, double
Double nests, see nests, double
Du Bartas, vocalization of skylark song, 87

Echoic names of birds, 109-110
Eggs, variation in size, etc., 36 ; double-shelled and double-yolked, 38-39 ; variation in coloration, etc., 168-169
Emulation in song, 12
Extinction of certain birds, 95

Fairies, albinos their offspring, 64
Fantail, 18 ; variations in nest, 20 ; an albino, 22 ; in Maori myth, 25, 26, 27 ; influenced haka, 28 ; caused death of Maui, 28-29 ; found by Turi, 104
Fifth, a natural interval, 1
Finches, 90 ; reason for name, 110
Finschia novae-zealandiae, 78
Flycatcher, 18
Fowler, W. W., scale in bird-song, 1, 2
Fulton, R., egg of cuckoo, 168

Gannet, in battle of the birds, 27
Garstang, W., art in bird-song, 15 ; vocalization of bird-song, 90 ; song of chaffinch, 91
Glaucopis cinerea, 102
Glaucopis wilsoni, 101
Godwit, migration, 165
Goldfinch acclimatized, 90
Grey, Sir. G., *see* proverbs, Maori
Greenfinch or green linnet acclimatized, 90, 91
Grey warbler, 48 ; probably two species, 50, 57-58 ; influenced Maori music, 58 ; in story of Hau-tupatu, 58-59 ; origin of name riroriro, 59
Gull, in battle of the birds, 27 ground-lark, 81
Gungl, I., notes of cuckoo, 173
Guthrie-Smith, H., the pipit, 82 ; incubation of tui, 113 ; song of kaka, 184

Haka, influenced by fantail, 28
Harmonics in vibrating string, etc., 4-6 ; in tempered scale, 7 ; in call of paradise duck, 202-203
Harmony destroyed natural scale, 7
Hau-tupatu, story of, 58
Hawk, in the battle of the birds, 27-28
Hedge-sparrow, 45, 46-48 ; in thrush's nest, 39
Herbert, W., song of swallow, 12 ; learning of song by young birds, 14
Heteralocha acutirostris, 94
Heywood, J., note of cuckoo, 173
Hihi, *see* stitch-bird
Honge (New Zealand crow) in battle of the birds, 26
Hudson, W. H., bird-cries and young birds, 14
Huia, 94 ; restricted range, 95 ; on postage stamp, 96 ; valued by Maori, 97 ; Earl Onslow's son named Huia and presented to Maori chiefs, 97 ; only one form of the name, 110
Humperdinck, E., notes of cuckoo, 173
Hutton, F. W., cuckoo migration, 165

Imitation in song, 12-13

Jardine, W., song of titmouse, 68
Jews' harp, why a favourite musical instrument, 136

Kaka, 184 ; in battle of the birds, 27 ; on postage stamp, 97 ; used to call the bush from sleep, 132, 185
Kakariki, *see* parrakeet 191-2
Kapiti, a sanctuary, 98

Kawau (cormorant or shag), in battle of the birds. 25-26
Kea, 188 ; English birds have similar habit, 188 ; spelling should be kia, 111
Kiore and pouwhaitere duet, 193
Kiwi, on postage stamp, 96-97
Kokako, 101 ; found by Turi, 104 ; in battle of the birds, as honge, 26
Korimako, *see* bell-bird
Koukou, *see* morepork
Kuku, in battle of the birds, 26
Kurangai-tuku, the ogre-woman, 59

Lark, the British birds, 84-86 ; and see skylark
Linnet, meaning and forms of name, 110
Linnet, green, *see* greenfinch
Linnet, grey, acclimatized, 90
Little Barrier a sanctuary, 97-98
Lydgate, J., mentions woodlark as wodwale, 86

Macgillivray, —., vocalization of song of thrush, 33
Main, —., song of the skylark, 84
Makomako, *see* bell-bird
Maori hen, *see* weka
Maori music, 2 ; influenced by warbler, 58
Mathews, G. M., cuckoo migration, 171
Maui and the Mother of Death, 28
Melampsalta cingulata, 204
Melody instinctive, 6
Migration of birds, 164-166 ; males precede females, 10
Miller, D. C., natural and tempered scales, 7
Milford, J., sociability of birds, 72
Mimicry in song, 12-13
Miro albifrons, 64
Miro australis, 65
Miromiro, 48 ; see tom-tit
Missel-thrush, forms and meaning of name, 111
Mistletoe, Potts's description of, 147
Mocking-bird, how bell-bird came to be called so, 160
Mohua, 69 : *see* bush-canary, 77
Mohua, ochrocephala 77
Momigny, —., harmonics, 5
Morepork, 196 ; in battle of the birds, 26 ; forms of Maori name, 110
Motu Ngaro Island a sanctuary, 98
Mudie, R., birds blossom in spring, 8 ; song of caged birds, 9 ; song of titmouse, 68 ; of woodlark, 85 ; meaning of name missel-thrush, 111
Myths, Maori, battle of the birds, 25 ; Maui snaring the sun, 104 ; Maui overcoming death, 28 ; confusion in collection of, 140 ; superior and inferior versions, 140 ; hibernation of long-tailed cuckoo, 181-182

Names of birds, 109-112
Nesting-place, strange, 92
Nestor meridionalis, 184
Nestor notabilis, 188
Nests, double,—fantail, 20 ; thrush, 35 ; linnet, 36 ; blackbird, 36 ; blight-bird, 107
Ngirungiru, 48 ; see tom tit
Ngoiro (gull), in battle of the birds, 27
Nightingale, duration of song-period, 9, 10-11 ; acclimatization in New Zealand, 45 ; n. and sappho, 136
Ninox novae-zealandiae, 196

Oboe, quality of sound, 4
Occult significance in white birds, 64
Ocydromus, sp. 199
Omens, Maori,—huia and crane, 97 ; saddle-back, 100
Onslow, Earl, son named Huia, 97
Overtones in vibrating strings, etc., 4-6
Owen, J. A., sociability of birds, 72 ; English and French bird-names, 110-11

Paradise duck, 202
Parrakeet, 191 ; vocalization of notes, 192, 193 ; known to Maori as the footballer, 195
Parrot, brown, *see* kaka
Parrot, mountain, *see* kea
Parson-bird, *see* tui
Partial tones, 4-6
Partnership among birds, see sociability
Patu-paiarehe, albinos their offspring, 64
Petroeca macrocephala, 60
Petroeca toitoi, 60
Pipe used in recording songs, 8
Pigeon (kuku), in battle of the birds, 26
Pihoihoi, 81
Piopio, 39
Pipipi, 69 ; see brown creeper, 78. pipit, 81
Pipiwharauroa, *see* cuckoo, shining
Pirakaraka, a name of the fantail in battle of the birds, 26
Pitoitoi, 48 ; see North Island robin, 64
Piwakawaka, 18
Pogonornis cincta, 140
Pokotea, 69
Postage stamps showing New Zealand birds, 96

Potts, T. H., fantail and cuckoo, 25 ; fantail carrying food, 28 ; New Zealand thrush, 40-43 ; a third species of warbler, 50 ; eulogy of warbler, 50 ; on the yellow-breasted tit, 60-61 ; on habits of saddle-back, 98-100 ; the North Island crow, 101 ; the South Island crow, 102 ; first appearance of blight-bird, 107 ; spelling of kea, 112 ; habits of bell-bird, 142 ; description of mistletoe and of alpine scene, 147-149 ; egg of cuckoo, 167 ; song of cuckoo, 176
Poy-bird of Cook, 113
Prosthemadera novae-zealandiae, 112
Proverbs, Maori,—regarding thrush, 44 ; warbler, 58 ; tom-tit, 63 ; crane, 64 ; white hawk, 64 ; saddle-back, 100 ; Maori quail, 115 ; tui, 136 ; shining cuckoo, 177, 179 ; long-tailed cuckoo, 182 ; kaka, 187 ; pigeon, 187 ; parrakeet, 195 ; weka, 201 ; cicada, 206
Pseudogerygone igata, 48
Putangitangi, 202

Quail, Maori, in proverb, 115
Quality of sounds, 4, 6

Redpoll acclimatized, 90
Reed-warbler, acclimatization in New Zealand, 45
Rehua, bird of, 204
Reischek, A., song of the tom-tit, 62-63 ; destruction of stitch-bird, 141 ; song of bell-bird, 150
Resolution Island a sanctuary, 98
Rhipidurà flabellifera, 18
Rhipidura fuliginosa, 18
Rifleman, 162
Ring-eye, *see* blight-bird
Riroriro, 48 ; *see* grey warbler
Robin, 48 ; in battle of the birds, 26 ; North Island robin, 65 ; South Island robin, 64-65 ; in snaring of sun, 105
Robin Hood ballad mentions wood-lark, 86
Romanes, G. J., singing instinctive, 13-14
Ruru, *see* morepork

Saddle-back, 94, 98 ; accompanies white-heads, 71 ; in snaring of sun, 105
Sanctuaries set aside, 97-98
Scale, musical, in bird-song, 1 ; physical basis of, 3, 4-6 ; not invented by science, 6 ; tempered scale, 7
Schmitt, C., song of blackbird, 44
Sex and song, 8-12
Shag, in battle of the birds, 25-26
Shortland, E., song of bell-bird, 149-150
Silver-eye, *see* blight-bird
Skylark, 84 ; its method of singing, 84, 87-88 ; compass of song, 86 ; vocalization of notes, 86, 87
Smith, S. Percy, white-heads and saddle-backs, 71
Sociability of thrush and hedgesparrow, 39 ; of white-head and saddleback, 71 ; of various English birds, 72
Song, not a sexual character, 8 ; period when song is best, 9 ; why confined to male, 11 ; female objecting to song of male, 11-12 ; emulation in, 12 ; learning of by young birds, 13-14 ; aesthetic nature of, 14
Songs, Maori,—hauling song introducing bird - calls, 100 ; greeting shining cuckoo, 177 ; concerning same, 179 ; the long-tailed cuckoo, 180 ; duet, rat and parrakeet, 193 ; parrakeet, 194 ; song and dance on cicada theme, 207
Sparrow, 92 ; reached Chatham Islands unaided, 107
Stadler, H., song of blackbird, 44
Starling, 93 ; flying oversea to roost, 93-94
Stitch-bird, 140; in snaring of the sun, 105
Stowell, H., translation of a tui-speech, 137 ; pronunciation of words by tui, 138 ; an original tui-speech, 138 ; on the tui singing in chorus, 139 ; cuckoo and warbler, 167 ; cuckoo carrying pebble, 178 ; rendering of song, 179 ; kaka and morning chorus, 187 ; song and dance of cicada theme, 207
Swallow, song of, 12
Swinburne, A. C., Sappho and the nightingale, 136

Tane-te-wai-ora, in battle of the birds, 26
Tarakihi, *see* cicada
Tauhou, *see* blight-bird
Taylor, R., morning song of bell-birds, 150 ; the cuckoo, 166, 174-175, 182
Tempered scale in music, 7
Thomson, A. S., on song of bell-bird, 149
Thrush, English, 30 ; practice notes, 31-33 ; vocalization of notes, 32-33 ; change in habits, 34-38 ; double nests, 35 ; double-lined nests, 36 ; varying eggs, 36 ; hedgesparrow in thrush's nest, 39

Thrush, New Zealand, 39; Potts on its nest and eggs, 43; only the North Island species sang, 43-44; Maori proverb, 44
Tieke, 94; see saddle-back, 98
Timbre of sounds, 4, 6
Tiraueke, the saddleback, in battle of the birds, 26
Titipounamu, *see* rifleman
Tit, 48, 60
Titmouse, 68
Tiwaiwaka, found by Turi, 104
Tiwakawaka, 18
Toitoi, 69; see brown creeper, 78
Tomtit, 48; white-breasted and yellow-breasted, 60; a love-messenger, 63
Toutouwai, 48; see South Island robin, 65
Travers, W. T. L., differences in North Island and South Island birds, 70; coming of blight-bird, 107
Tui, 106; when first made known, 113; the parson-bird of Cook, 113; first brought alive to England, 113-114; character of tui, 114; known as the mocking-bird, 114; Cook's description of morning chorus, 116; has many notes in common with bell-bird, 126; its whisper-song, 127; sings duets, 131; his improving on his imitations, 131-132; the morning chorus, 132-135; teaching of young to sing, 135-136; cinema portrait of tui, 136; the Maori taught him speeches, 136-138; female gives signal in chorus, 139; various names, 140; deities of tui, 140; tui in battle of the birds, 26; harsh notes possibly imitation of bell-bird, 161
Turi, the voyager, 104
Turnagra crassirostris, 39
Turnagra tanagra, 39
Twenty-eight, a parrakeet cry, 193
Twinkie, *see* blight-bird
Twite failed to establish itself, 90

Upokotea, 69
Urodynamis taitensis, 179

Vibration of strings, etc., 3-4
Violin-players and natural scale, 8
Visitants from Australia and Tasmania, 107
Vocalization of songs valued, 90

Wagtail, forms of name, 110
Wanganui Museum, albino fantail, 22
Warbler, grey, 48; *see* grey warbler
Warblers, 45
Watson, J. and W. B., migration of birds, 10, 11; notes of cuckoo, 174
Wax-eye, *see* blight-bird 106, 107
Weka, 199
Wharauroa, *see* cuckoo, shining
Whatihua and the forest-maiden, 114
White, G., song of titmouse, 68
White birds, occult significance, 64
White-ear, meaning of name, 110, 111
White-eye, *see* blight-bird
White-head, 69; North and South Island forms, 70-71; flocks accompanied by saddlebacks, 71; optimism and song, 72-73
White-throat, acclimatization in New Zealand, 45; French form of name, 110
Wilson, F., notes of huia, 95
Witchell, C. A., intervals of bird notes, 1; mimicry in song, 13
Wodwale, the woodwale or woodlark, 86
Wohlers, J. F. H., song of bell-bird, 151; cry of morepork, 197-198
Wood, J. G., song of titmouse, 68
Woodhen, *see* weka
Woodlark, song of, 85; supposed to be referred to as woodwale, 86
Woodwale, probably the woodlark, 86
Wren, English, acclimatization in New Zealand, 45

Yarrell, W., song of nightingale, 10; mimicry, 13; song of titmouse, 68; of skylark, 85; of finches, 90; of starling, 93; note of cuckoo, 173
Yates, W., confused the cuckoos, 174, 181
Year, Maori year once divided into ten months, 137 note
Yellowhammer, vocalization of song, 83, 89

Zosterops caerulescens, 106

Printed by Whitcombe and Tombs Limited. G 44877

N

By R. M

WHITCO

PLANTS OF
EW ZEALAND

. LAING, B.Sc., F.N.Z.Inst., and E. W. BLACKWELL

R. J. Thomson, Photo

A Nikau Palm Grove, at Morere Hot Springs
Hawke's Bay

vishly illustrated by Original Photographs from Nature
Third Edition, Revised and Enlarged

PRICE 15s.

"This is an entertaining and instructive account
of the plants of New Zealand, told by authors
who have sufficient mastery of the English language to be able to write with clearness
and accuracy."—
SCIENCE

BE AND TOMBS LIMITED

BIRD-SONG
AND
NEW
ZEALAND
SONG BIRDS

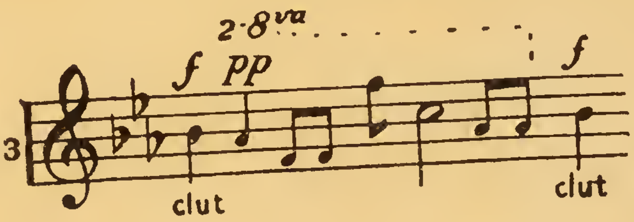
By
JOHANNES C.
ANDERSEN

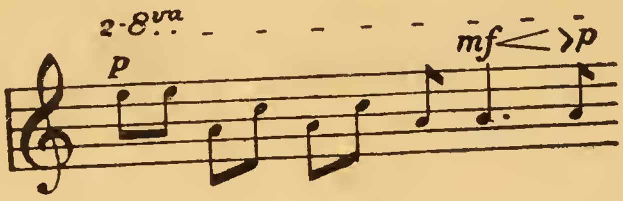
WHITCOMBE &
TOMBS LTD.

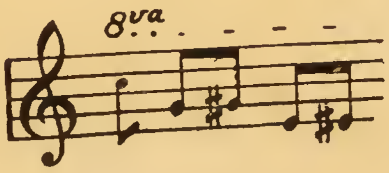
BIRD-SONG
AND
NEW ZEALAND SONG BIRDS

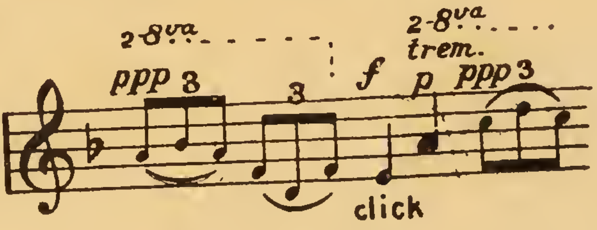
By JOHANNES C. ANDERSEN, F.N.Z.Inst.

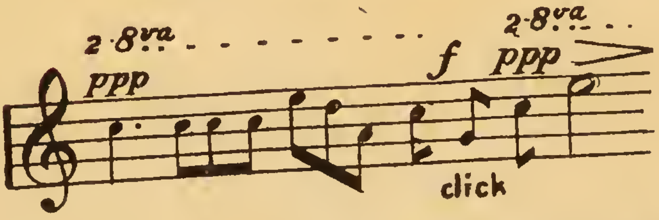
Tui : old and young [*Buller*

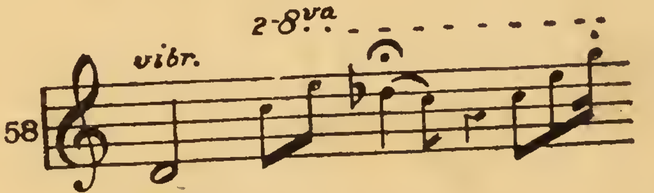
53


54


55


56


57


58


New Zealand Bird-Song Immortalised

◆

MR. ANDERSEN has for some years past been setting down, in musical notation, the songs of our New Zealand birds. He has now collected into book form his notes on the birds and their habits, and on the bush where they live, and has included between one hundred and two hundred of the more distinctive notes and songs. The book thus comprises an original and unique contribution to the literature of New Zealand ornithology.

◆

Birds

16 Fantail

30 Thrush [illegible]

26 Hedge [illegible] [illegible]

[illegible] 1/3

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

New Zealand Bird-Song Immortalised

◆

The weka is an active member of the
bush patrol. He is always on the move, always on
the watch, his [illegible] closely [illegible] the ground,
and every movement is examined closely
he looks, and he pokes here there and every
where. He stirs up the dead twigs, which
rummaging in every likely or unlikely hiding
spot; nothing is beneath his notice and every
thing is under his eye; he is rummaging so
many [illegible]; but he never [illegible] a [illegible] [illegible]
the [illegible] [illegible]

Birkenhead, 129

16 Fantail
30 Thrush
46 [illegible]

[illegible]

Birds 155
Misc [illegible]

The Bookman

NEW ZEALAND BIRD-SONG

A FASCINATING VOLUME.

"Bird-song and New Zealand Song Birds." By Johannes C. Andersen, F.N.Z.Inst. Whitcombe and Tombs, Ltd.

Why do the birds sing? Is there any analogy between the songs of the denizens of the forest and the vocal outpourings of human beings? Is it possible to record accurately by means of our modern musical notation the ecstatic singing of a blackbird or thrush? These and many alike questions Mr. Andersen seeks to solve in "Bird-song and New Zealand Song Birds." At once an incomparable naturalist and a poet, Mr. Andersen presents a volume unique in the literature of ornithology either in New Zealand or any other country, and one does not know which to admire most, his extraordinary patience as an observer of Nature or his facile manner in recording his observations. Into his description of the birds of New Zealand he deftly weaves his unbounded knowledge of Maori lore and mythology, producing as the result one of the most fascinating natural history volumes imaginable.

BIRD MINSTRELSY: ITS MUSICAL NOTATION.

The mere account of the habits, nests, and eggs of the New Zealand birds, with the extraordinary fine photographic reproductions, is enough in itself to make the book one of extreme value to naturalists. But Mr. Andersen goes very much further than this; in fact, the object of the volume may be said to be the placing on record by means

New Zealand Bird-Song Immortalised

◆

2

expression being most developed, most exuberant, when the spring-tide of the blood is flowing; and that in song the sexual emotion finds a powerful ally, seizing upon it, but not creating it, for the furthering of its own especial and occasional end. That which is true of human song is true, in a larger degree, of bird song; nor does this ascribe to birds a greater aesthetic sense than has already been ascribed to them by those who maintain their song is purely sexual.''

In the introduction to the book the musician will find an interesting dissertation upon the musical scale, both human and ornithological. "The bird is a minstrel, not a musician. . . . Many of the New Zealand bird-songs may be vocalised—that is, the bird appears to say things—but more are pure loops of exquisite sound hung for a few charmed moments in shadowy recesses and when a bird in a Beethoven rapture sits quietly singing a perfec theme with variations, from the minstrel we hear the musician emerging.'

There is but one fault to find wit this book. Its whole get-up is exce lent, reflecting the greatest credit on the publishers, especially the reproduction of numerous and unique photographs. But its price is 25s, and, although it is cheap at that in view of its contents, that is unfortunately a sum which will prevent the acquisition of the book by the many who would be charmed to possess what is undoubtedly the most original contribution to the literature of New Zealand ornithology.

3

of musical notation of the songs and calls of the Dominion's birds, both native and imported, and admirably has he succeeded, although, to mention a small point, there may be some to disagree with his suggestion that in New Zealand it is practically impossible to distinguish between the song of the blackbird and that of the thrush. Surely it is a stroke of genius, allied with sly humour, that made Mr. Andersen devote his closing chapter to the song of the cicada. To the Maori, it seems, the cicada, or tarakihi, is the sweetest singer of all the New Zealand song-birds. The extraordinary rhythm, with its unusual syncopation, of the cicada's song has inspired the Maori to imitation with an extremely popular pastime-song and dance.

SONG AND SEX.

Why do birds sing at all? While not supplying a positive answer, Mr. Andersen pours cold water on the sexual theory. Bird song, he says, may be seen as a characteristic quite apart from sex, but upon which on occasion sex seizes for its own end. "Human song gives wide expression to the emotions of love, of praise, of joy, of good-fellowship. It would surely be too much to say that the source of the whole is in the sexual emotion, the songs of worship and good-fellowship being merely secondary blossomings of the primary emotion; rather it would be nearer the truth to say that song is a natural expression of emotion, the

Order

15 Fantail [illegible]
30 Thrush [illegible]
46 Hedge sparrow
48 Grey warbler [illegible]

5

Every school should possess at least one copy, and the book is dedicated to the school children of New Zealand, and anyone with the smallest appreciation of the bird life of his country, once he or she has seen the volume, will not rest content until it is acquired by fair means or foul.

Gummed on out of order: the sequence is revealed by the numbers 1. 2. 3 4. and 5.

New Zealand Bird-Song Immortalised

◆

Order

16 Fantail

30 Thrush

46 Hedge sparrow

48 Grey warbler

60 Tom-tit
Robin

64

69 White head

77 Bush canary 77

81 Pipit 81

84 Skylark 84

90 Chaffinch 91

93 Starling 93

94 [illegible] 94

98 Saddleback 98

101 [illegible] 101

106 Blight bird 106

112 Tui 112
120 Stitch bird
122 Bell bird [illegible]

162 ? Kingfisher 162 ? only

164 Cuckoo [illegible]
L. T. [illegible]

Pukeko 155

R[illegible] 159

[illegible] 6[illegible]

Morepork 171

Weka 183

Paradise duck
& [illegible] 202

Scaup 204

[illegible]
[illegible]

New Zealand
Bird-Song

164	Shining Cuckoo	164
179	Long-tailed "	179
184	Kaka	184
185	Kaka	185
191	Parakeet	191
196	Ruru Morepork	196
199	Weka	199
202	Paradise duck	202
204	Cicada	